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GENERAL MEETING² of the ARCHAEOLOGICAL INSTITUTE OF AMERICA

The Forty-second General Meeting of the Archaeological Institute of America will be held at Baltimore, Maryland, December 26-28, 1940. The Annual Meeting of the Council will be held during this period.

Members of the Institute and others who wish to present papers at the meeting are requested to send the titles and brief résumés of their papers to Mr. H. T. Westbrook, General Secretary, Archaeological Institute of America, 504 Schermerhorn Hall, Columbia University, New York, New York, before **November 1, 1940.**

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ARCHAEOLOGICAL NOTES

AN ANTEFIX AND A HEKATAION RECENTLY ACQUIRED BY THE METROPOLITAN MUSEUM OF ART

I. AMONG the Museum's acquisitions in 1939 is a terracotta antefix with a gorgoneion in low relief, said to have been found at Tarentum (fig. 1).¹ Its condition is remarkably good. A small piece is restored at the left edge of the relief, and the kalypter at the back is not preserved to its full length; some blurring of the front teeth and a groove down the side of the nose are due to mishaps during manufacture. But the surface is exceedingly fresh and sharp, with abundant traces of color. There is a white engobe over the whole surface, upon which were applied yellow for the flesh and red for the spiral curls, beard, gums, lips, and tongue; the serpents which form a border round the head are red on a blue ground, and the enclosing raised line is red. The type, late archaic, is already known² from fragments in New York (fig. 2),³ in Amsterdam, and in Munich,⁴ but the newly acquired antefix is by far the best example. The New York and Amsterdam⁵ fragments are identical with it in all particulars except size, being smaller in the ratio of about 13 to 16. The original work of the modeller, therefore, was the mould in which our antefix fig. 1 and others like it were cast. From one of these latter, in antiquity, an impression was taken, and used as a mould from which in turn another series of antefixes was produced. To this secondary series belong the New York and Amsterdam fragments, which through the repeated processes of drying and firing have suffered a reduction in size.⁶ The reduplication took place in Tarentum itself, to judge by the Tarentine provenance of all known examples.

II. The extreme rarity of Greek wooden sculptures in the round has made the appearance of new examples something of a sensation. To the small existing number has been added a Hekataion⁷ of juniper wood,⁸ from the Hellenistic period, acquired in New York in 1939. It is a triple statuette of Artemis-Hekate, bareheaded and wearing a chiton, baldric, and quiver (fig. 3). The surface, which has suffered considerably, is coated with gesso to serve as a base for paint or gilt, but no trace of either is preserved. It is perhaps one of the small sentinels which stood at a fork of the road, maintaining watch in three directions, or at the doorway to keep out evil influences, Hekate being the goddess of ghosts and purifications. So usual was the

¹ No. 39.11.9. Height $8\frac{1}{4}$ in., width $10\frac{5}{16}$ in. (21 x 26 cm.); *B.M.A.* 1939, p. 107.

² E. D. van Buren, *Archaic Fictile Revetments in Sicily and Magna Graecia*, 1923, p. 143 (30), fig. 61.

³ Here published for the first time.

⁴ Inv. 7083. Dr. Diepolder has kindly sent a photograph of this piece, but is unable at this time to supply the measurements. The antefix is complete except for the left-hand side of the serpent border, which is missing. Mrs. van Buren's fig. 61 does not correspond with any of the three listed in her text, but is a fourth piece, the location of which is unknown to me.

⁵ In the Scheurleer collection, now in the Alard Pierson Museum. G. A. S. Snijder had the kindness to compare measurements.

⁶ For the practice of recasting in this way cf. E. Jastrow, *Opuscula Archaeologica* ii, i, 1938, pp. 1 ff.

⁷ No. 39.11.3. Height $9\frac{1}{4}$ in. (23.4 cm.). *B.M.A.* 1939, pp. 272 ff.

⁸ Identified by S. J. Record, Dean of the School of Forestry at Yale. *B.M.A.* 1940, p. 92.



FIG. 1.—TERRACOTTA ANTEFIX, SAID TO BE FROM TARENTUM
(Courtesy of the Metropolitan Museum of Art)



FIG. 2.—FRAGMENT OF A TERRACOTTA ANTEFIX, SAID
TO BE FROM TARENTUM
(Courtesy of the Metropolitan Museum of Art)



FIG. 3.—WOODEN HEKATAION, SAID
TO BE FROM ALEXANDRIA
(Courtesy of the Metropolitan Museum
of Art)

presence of her shrine before an Athenian house that Aristophanes uses the simile "in front of the doorway, like a Hekataion."⁹ Large numbers of these triple figures have survived,¹⁰ most of them marble, some of bronze, and another besides ours even of wood.¹¹

It is clear that Greek sculptors did not neglect wood as a material, although most of their work has succumbed to damp weather. In Egypt and the Crimea, where the climate is favorable, and in other localities where accident has favored its preservation, wooden sculpture has appeared. If these local survivals are added to what ancient authors and inscriptions tell us, wooden sculpture has a full-length history, and a fairly distinguished one. The primitive xoana of early Greece were still revered in the sanctuaries and commemorated on the coin-types after the Roman conquest.¹² The goddesses recently found at Palma di Montechiaro in Sicily belong to the late seventh century.¹³ The sealed cave near Corinth,¹⁴ which produced the painted pinakes of the sixth century is said to have yielded some small archaic carvings in the round. The lost wooden statues by Endoios, Myron, Pheidias, and the sons of Praxiteles¹⁵ take us through the fifth and fourth centuries to the wooden statuettes of Hellenistic Alexandria.¹⁶ There are three Roman statuettes in the Louvre, one of them from Egypt¹⁷ and another from the Crimea, and an archaistic mask of Dionysos in Baltimore.

Some of the wooden sculptures listed at Delos were gilded. We do not know how many of the "gilded" statues referred to by ancient writers, for example the vast numbers carried in Ptolemy's procession,¹⁸ were of wood. The light material would be suitable for processional statues, and we are told that two wooden Junos were

⁹ *Wasps*, 804, where a shrine is evidently meant. Hesychios, s.v., makes a Hekataion an image.

¹⁰ Cf. E. Petersen, *AM*, iv, 1880, pp. 140 ff. and v, 1881, pp. 1 ff. Many addenda could now be made to the lists.

¹¹ E. Breccia, *Monuments de l'Égypte* i, Bergamo, 1926, p. 110, pl. LXXIV.

¹² Pausanias, *passim*. The Delian inventories mention a wooden statue of Leto "wearing a linen chiton and linen shawl; a pair of hollow sandals; the throne on which she sits is wooden; the footstool is decorated with ivory." *Inscr. de Délos*, 1417A, col. I, 100; cf. Athenaios, 14, p. 614B, and Courby, *BCH*, 45, 1921, pp. 230 ff. This may have been a primitive statue. In the temple of Apollo there were twenty-three "ancient" (ἀρχαῖοι) wooden Apollos, with ten Artemises (1428, col. 50 and in subsequent lists) and in the oikos of the Andrians fifteen damaged "ancient" wooden statues. There is mention of an "ancient" wooden statuette (1417, col. I, 72). References to wooden sculptures not described as "ancient" are as follows, excluding repetitions of the same entry in successive inventories: *Inscr. de Délos*, 1412a, 26; 1416a, col. I, four entries, lines 11, 12, 14, 17 (this list is for Egyptian temples, one of the statues being Anubis, another Herakles, two statuettes undescribed); 1417A, col. I, 44 (gilt); 1440A, 5; 1442B22; *IG*, xi, 2, 161 (gilt); *IG*, xi, 2, 164A98; *IG*, ii-iii², 1461, 24. There are also acrolithic (wooden?) statues of two goddesses with gilt wooden crowns and earrings, wearing linen chitons and shawls (*Inscr. de Délos*, 1417A, col. I, 51).

¹³ G. Caputo, *MonAnt.* xxxvii, 1938, pp. 587 ff. (ill.); a wooden head and a carved footstool from the middle of the seventh century have been found at Samos, *AA*, 52, 1937, col. 204.

¹⁴ Unpublished; noticed in *AA*, 49, 1934, cols. 194 f.

¹⁵ For makers of xoana or of statues described as of wood, cf. Overbeck, *Die antiken Schriftquellen*, nos. 328-330, 341, 342, 351, 403, 417, 486-488, 516, 535, 635, 1041, 1333. See also Fraser's *Commentary on Pausanias*, ii, p. 69, and iv, p. 245.

¹⁶ Breccia, *loc. cit.*; cf. also the wooden sarcophagi of Alexandria and the Crimea, Watzinger, *Griechische Holzarkophagen*, and *CR de la Comm. Arch.*, 1882-88, pp. 48 ff., pls. III-IV.

¹⁷ Gebauer, *AM*, 64, 1938/9, p. 85, pl. 5. I am indebted to P. Jacobsthal for this reference, and for calling attention to the Samos find, footnote 13.

¹⁸ Athenaios v, 197c.

carried in a procession at Rome in 207 B.C.¹⁹ It is easy to imagine how ubiquitous were the terracotta statuettes, for they have survived in vast quantities. To what extent wooden images, now so nearly lost altogether, were on hand is harder to tell. Being like terracotta a cheap and easy medium, wood did not necessarily excite comment. For instance, it is nearly absent from the Delian inventories until the Roman occupation, although many of the statues were then already venerable, and may have stood in the sanctuaries long before any note was made of them in the lists.

CHRISTINE ALEXANDER

THE METROPOLITAN MUSEUM OF ART

¹⁹ Livy xxvi, 37.

A MEDIAEVAL GLASS-FACTORY AT CORINTH

THE excavations of the past few years at Corinth have revealed much of the life of the city during the Middle Ages, and the traditional prosperity of the community under Byzantine rule now appears established by the material remains. Investigation on the site of the ancient *agora* has shown that the section which had been the focus of the city's public life during the classical period took the same place after Corinth recovered from barbarian pressure. The later *agora*, however, covered a smaller area than the original one, and much of the space formerly employed as an open market-place was used for various buildings, including a number of factories. Early in the eleventh century three potteries, several smithies, and two factories for the making of glass vessels were set up not far from one another. The presence of such establishments adjoining the public area bears witness not to a curtailed commercial life but to the lessened political importance of the city. Public affairs no longer required the space or the magnificent buildings of the days of Imperial Rome.

The discovery of the glass-factories came as a surprise, for Greece as a whole has never been considered a centre of glass-making, nor had previous finds of mediaeval glass at Corinth, meagre and infrequent as they were, led anyone to suspect the existence of a manufacturing centre.¹ The peculiar circumstance which seems to have caused the establishment of these factories will be discussed later. The two glass-factories, practically contemporary, were separated from each other by a distance of only 75 metres. Evidence of the factory in Agora Northeast² was confined to fragments of furnace-pots and refuse discarded from the workshop: no remains of the furnace itself or of the rest of the establishment were discovered. The factory in Agora South Centre was of much greater interest. The first traces of it were found on June 3, 1937, at the entrance to the small chapel (fig. 1) standing about 20 metres west of the large Church of St. Paul,³ with which it probably was connected. At a depth of 2.90 m.⁴ was found a stratum of rather sandy, reddish earth, containing a mass of glass frit, fragments of vases, and a few mediaeval coins

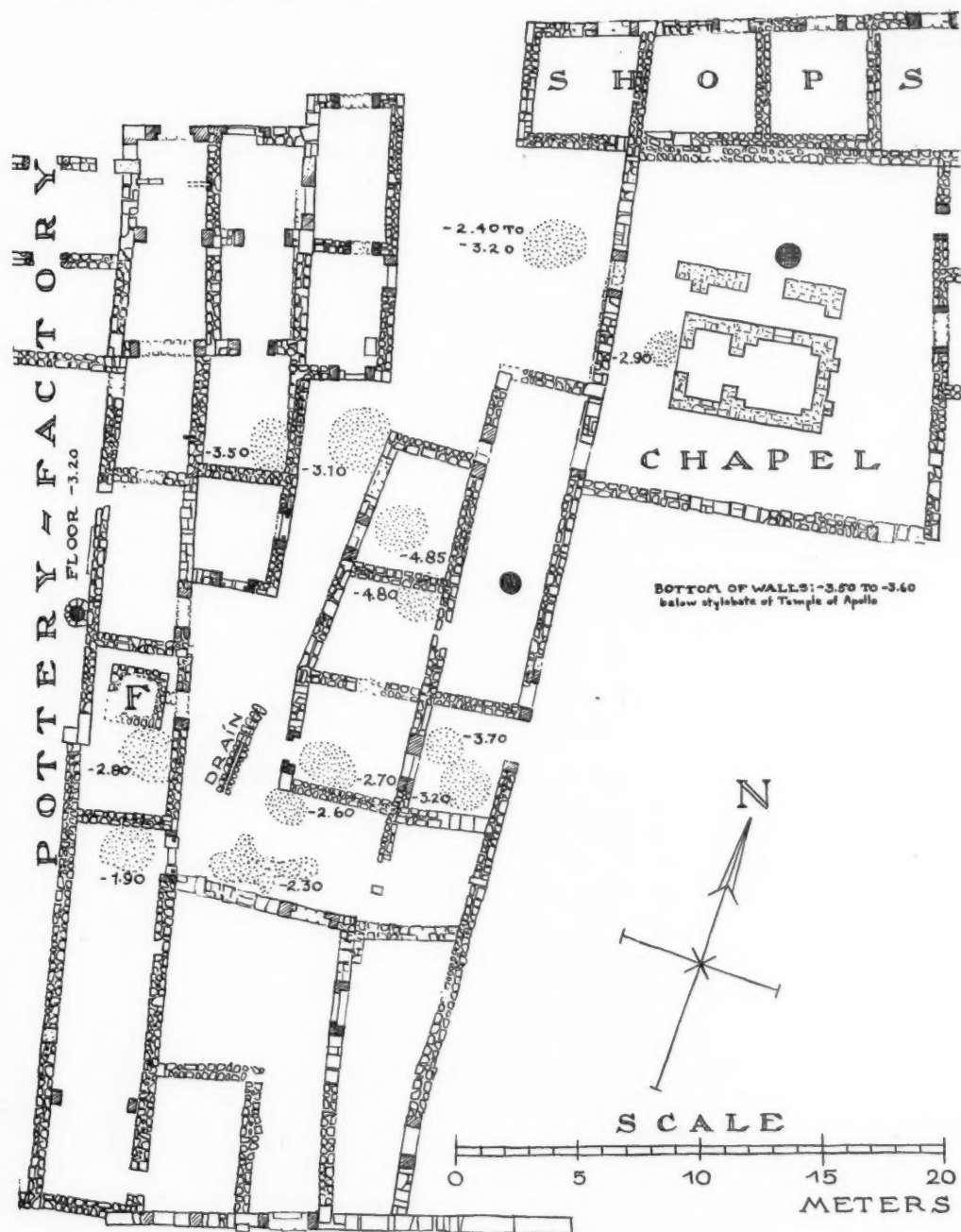
¹ In the preparation of this article many individuals have been of assistance. Prof. Charles H. Morgan II, formerly Director of the American School of Classical Studies, provided every facility for the completion of the study, and furnished data concerning associated pottery. The assistance and advice of Prof. Oscar Broneer, and the cooperation of Miss Mary T. Campbell, excavator of the site, have been invaluable. Dr. Frederick R. Matson, Jr., of the University of Michigan, kindly prepared the technological report appended below. To Dr. C. J. Lamm I owe the photographs reproduced in figs. 24 and 25, as well as much useful information. For criticism and suggestions I am grateful to Mr. D. B. Harden, Mr. W. A. Thorpe, and to Prof. C. J. Kraemer, Jr. I am indebted to Prof. W. A. Oldfather for the use of a copy of Theophilus. The drawings, with the exception of figs. 13 and 17, which were made by G. V. Peschke, are by Dr. Wulf Schaefer. The water-color reproduced in fig. 21 is by Piet de Jong. The photographs, except figs. 5 and 6, were made by H. Wagner. Assistance in the preparation of the figures was given by Maxine Brant.

² This designation, as well as Agora South Centre, was adopted for the convenience of the excavators, and gives only the approximate location in the *agora*.

³ *AJA.* xl. 1936, pp. 473 ff. and fig. 9.

⁴ This is the distance below the stylobate of the Temple of Apollo, as are all the levels mentioned in this article.

MARKET - PLACE



F = FURNACE, ☉ = DEPOSITS OF GLASS, ● = WELLS

FIG. 1. - PLAN OF GLASS-FACTORY

of indeterminate date. The following day more glass was found in this area, extending directly up to the west wall of the chapel. With the glass were a few sherds of *sgraffito* pottery, two Byzantine lamps, and two coins, one of Alexius I (1081–1118), and the other of Manuel I (1143–1180). Shortly after this discovery the excavation campaign ceased, and the deposit was thought at the time to be of negligible value, perhaps refuse from some vanished factory.

On October 23, 1937, as excavation was once more proceeding steadily westward, fragments of glass appeared thickly strewn in the earth at a level of 2.40 m. and extending down to a depth of 3.20 m. There were not only pieces of vessels, but glass threads, coils, tubes (fig. 2) and lumps of glass frit, some of the latter attached to tiles and potsherds (fig. 3). These, unlike the June finds, were associated with a structure the nature of which was not at the time clear, but which later proved to be the furnace. In addition to glass fragments, the earth, which was fine and brown, produced small stones, ashes, a few animal bones, some pottery, a lamp, fragments of large tiles, iron slag, and two coins of Manuel I. On the second day following, as work continued, it was discovered that the area containing glass extended to a considerable distance all round the region where it was first noticed. The areas of distribution may be observed in fig. 1. With the glass were many more coins: 1 Roman, 1 Vandal, 1 Romanus III (1028–1034), 1 Isaac I (1057–1059), 1 Michael VI (1056–57), 1 Michael VII (1071–1078), 2 Alexius I (1081–1118), 6 Manuel I (1143–1180), 1 Nicholas of Monforte (1450–1462), and a number of illegible pieces. From the immediate vicinity of the furnace came the following coins: 1 Corinth IIvir, 1 Constans II (641–668), 3 Nicephorus II (963–969), 1 Alexius I, 3 Manuel I. It may be observed from these coins, as well as from others subsequently found, that the coins are predominantly from the eleventh and twelfth centuries. The few Frankish coins found with the glass were discovered in areas where there was suspicion of later intrusion. The pottery found with the glass is also from the eleventh and twelfth centuries, a few pieces from the early thirteenth.

As excavation of the furnace and the surrounding area proceeded to lower levels, the same sort of fill was found, with no visible change in date or consistency. There continued to be a good many bones of animals, much ash, frit, and a few large pieces of lime. In fig. 1 the levels of the glass-filled areas are indicated. The rather wide range of depth which they show may be explained by the fact that the damaged glass must have been dumped into pits dug in the existing surface, the depth of such pits depending largely on the amount of glass to be discarded. The lowest deposit contained coins of the same period as the highest,⁵ as well as a glass bottle (fig. 20, no. 51) which is like other fragments found at a much higher level (fig. 19, nos. 58–61). At the same level were found many copper shavings (fig. 4), a bronze censer and a bronze lid (fig. 8, J).

The structural complex which comprised the glass-factory covered an area about 20 m. by 44 m. On the west it was bounded by a long wall containing a single entrance (possibly only an accidental break in the wall). On the other side of this common wall existed a pottery-factory which was in operation at the same time as the

⁵ 1 Constantius II (337–361), 1 Leo VI (886–912), 1 Romanus I (919–944), 4 Manuel I (1143–1180), 3 illegible, probably Manuel I.



FIG. 2. - GLASS CULLET AND FRIT

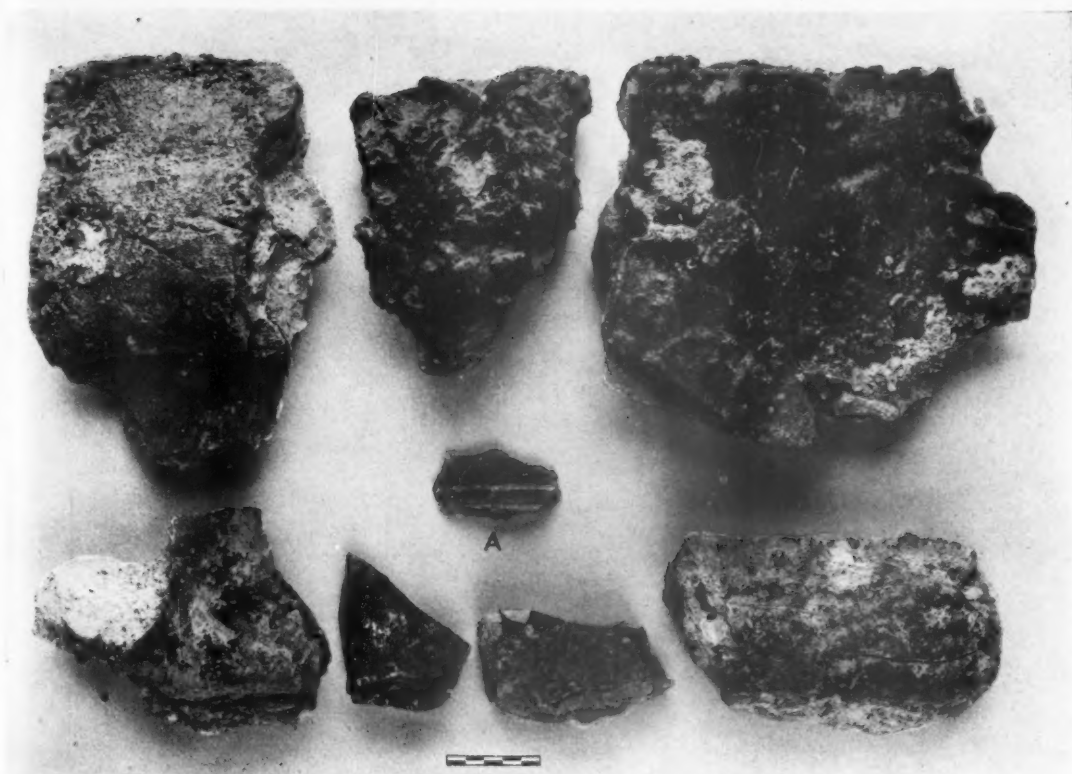


FIG. 3. — GLASS FRIT ATTACHED TO TILES

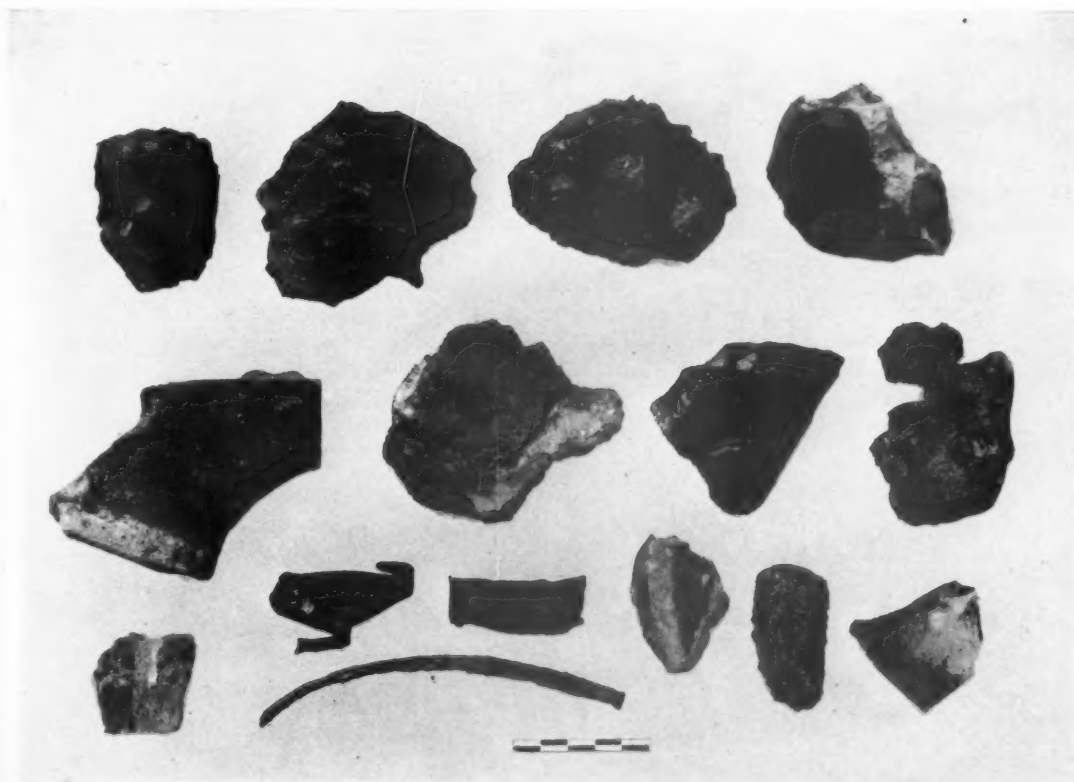


FIG. 4. — GLASS FRIT AND COPPER SHAVINGS

glass establishment. At the northeast was the small chapel connected with the Church of St. Paul, and at the southeast a large open court. On the south the factory was bounded by other structures of an undetermined nature, and on the north it faced the market-place.

The walls were constructed in the manner usual to buildings of the period. Rather small, uneven stones were first thrown into a narrow trench, the visible portion of the wall then built up with the same sort of stones, and with any large blocks which happened to be available. Mud was used for mortar. The walls were generally 0.65 m. to 0.80 m. wide. The type of construction can be observed in fig. 5, a view of the complex during excavation (the long wall at the extreme right of the photograph is the common wall between the glass and pottery establishments).⁶ At the west side of the complex a rectangular room, 7.50 m. by 3.30 m., with a single door in its east wall, contained the furnace itself. The furnace, constructed like the walls of the buildings, of field stones, was a square structure, measuring 2.38 m. each way (fig. 1). Its walls, irregular in the interior when uncovered, were no more than 0.30 m. wide, and were preserved to a height of only 0.40 m. (fig. 6). The southwest corner was missing. This foundation and the scraps of tile found nearby were all that remained of the furnace, far too little for a conclusive restoration. From this scanty evidence, however, certain of its features can be deduced. The furnace was so placed that on three sides it was hardly half a metre distant from the walls of the room. The only opening can have been on the fourth side, the south, where there were more than three and a half metres between the furnace and the wall. There the workers had more than eleven square metres in which to operate, and the door of the room was so placed that people entering would not interfere with their activities. No traces of windows remained, for the walls were too low. The fact that only one furnace existed gives another clue to its structure. In making glass two furnaces are commonly employed, a founding furnace in which a very high degree of heat is maintained, and an annealing furnace, kept at a lower temperature to cool the vessels. Since only one furnace was used in the Corinth factory, it is probable that it had three storeys. In the lowest the fire would be made, in the middle storey the raw materials fused, and in the upper division, separated from the central storey by a heavy partition, the vessels would be left to cool. There seems to have been no provision for a decreasing temperature in annealing the vessels, except that they might have been gradually moved from the centre outward. This comparatively primitive arrangement evidently served well enough, not only here, but in other mediaeval factories. Evidence of its success is the absence of strain-cracking in any of the fragments from Corinth. The walls of the furnace were probably thickly plastered inside and out. The fragments of tiles coated with frit (fig. 3) are undoubtedly pieces of the interior lining of the central portion, where the batch was fused. The waste which remained on the floor after repeated fusings and long use produced the coating. Most of the tile fragments were flat, but a few had two flat surfaces at right angles to each other (fig. 3, A and B), showing that they came from the edge of the floor, where it met the wall. Not one of them could have be-

⁶ The walls of the glass-factory, like all structures at this level, have been removed in order to make possible the investigation of earlier remains.



FIG. 5.—GLASS-FACTORY, LOOKING SOUTH



FIG. 6.—FOUNDATIONS OF FURNACE AND FURNACE-ROOM, LOOKING EAST

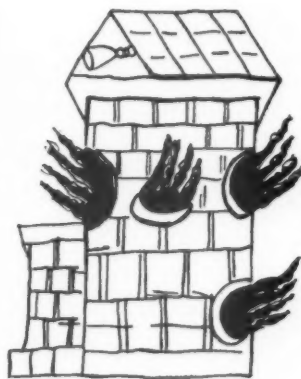


FIG. 7.—GLASS FURNACE FIGURED IN A MEDIAEVAL MANUSCRIPT

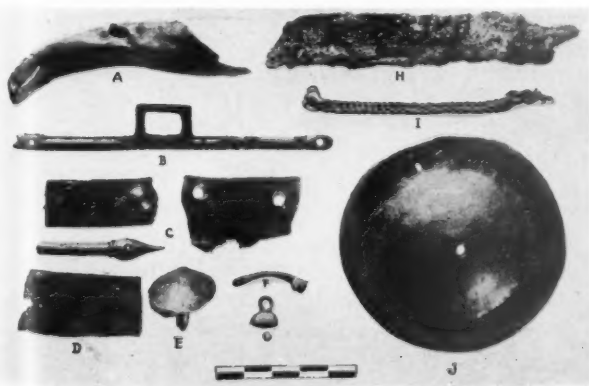


FIG. 8.—BRONZE OBJECTS FOUND IN GLASS-FACTORY

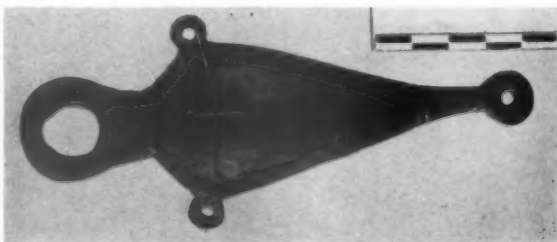


FIG. 9.—BRONZE STEELYARD WEIGHT

longed to pots such as were commonly used to fuse the glass, and it must therefore be concluded that the furnace was of the "tank" type, and that the whole batch was fused at one time on the floor of the central storey. How the metal was re-fused in order to purify it after the first fritting, is hard to imagine. No traces of crucibles were found in the vicinity, and it is perhaps possible that when small quantities of colored glass were desired they were brought in pots from the Agora Northeast factory.

The furnaces described by Theophilus Presbyter, a near contemporary who wrote an extensive treatise on the manufacture of glass,⁷ are also rectangular, but they form a far more elaborate establishment than this. The Corinth furnace resembles much more one which is described in a Syriac manuscript of the ninth century or later:

"The furnace of the glass-makers should have six compartments, of which three are disposed in stories one above the other. . . . The lower compartment should be deep, in it is the fire; that of the middle story has an opening in front of the central chambers—these last should be equal, disposed on the sides and not in the centre (?), so that the fire from below may rise towards the central region where the glass is and heat and melt the materials. The upper compartment, which is vaulted, is arranged so as uniformly to roof over the middle story; it is used to cool the vessels after their manufacture."⁸

Of a similar type, probably very like the Corinth furnace, is one which is figured in a manuscript of the early eleventh century (fig. 7).⁹

The door in the east wall of the furnace room led into a wide passageway running approximately north and south, with a short corridor turning eastward at the south end. Along the west side, and connected structurally with the north wall of the furnace-room, was a complex consisting of three rows of fairly large rectangular rooms, ten in all. Since in only one of these was any glass refuse found, it seems likely that they were used as living-rooms for the workmen, rather than for the manufacturing process itself. The rooms fronting on the market-place could have served as salesrooms, or, since the relation of producer and consumer was probably no less informal in mediaeval than in modern Greece, the customers might have come through the passageway into the factory to make their selections. The ash which was found on the floors of some of these rooms need not have been connected with glass-making, but may have formed the floor itself, or have resulted from the burning of the whole structure. To the south of the furnace-room lay another large group of oddly shaped rooms. In only one of them was any considerable amount of glass found. These rooms were probably, like those to the north, indirectly connected with the factory. Most of the glass-deposits were found in four of the five rooms to the east of the long passageway and in the passage itself. Some of the refuse lay in fairly hard *stoses*; some was dumped into pits; and some was simply scattered

⁷ *Diversarum Artium Schedula* (W. Theobald, *Technik des Kunsthandwerks im zehnten Jahrhundert*, Berlin, 1933). Book II is devoted to glass making. The exact date of the Ms. of Theophilus which has much interest for us (see also p. 320) appears to be doubtful. F. Rademacher, in *Die deutschen Gläser des Mittelalters*, Berlin, 1933, p. 14, discusses the date and origin of Theophilus and gives all the arguments concerned. He believes him to have been a German who lived ca. 1100.

⁸ Edward Dillon, *Glass*, London, 1907, p. 124.

⁹ Rabanus Maurus, *De Originibus Rerum*. See Dillon, *op. cit.*, p. 124 and pl. XIX; Theobald, *op. cit.*, p. 211 and Bild 17.

in the earth. No mediaeval source, so far as I know, discusses any part of a glass-factory save the actual furnace, and the character of the surrounding structures obviously was determined more by the exigencies of space than by design. The buildings were probably of one storey and of no architectural interest.

None of the tools necessary for glass-making was found, but a number of other metal objects turned up in the glass-deposits. Although they seem to have had no direct connection with the factory, they are illustrated in fig. 8 for the sake of presenting the entire evidence. The objects are: a bronze kettle spout (A), four bronze fragments of binding for a chest (B and C), a flat rectangular piece of bronze (D), a large-headed bronze tack (E), a miniature bronze axe-head (F), half a bronze button (G), an iron knife (H), a short length of fine bronze chain (I), a bronze lid (J), and half of an odd bronze steelyard weight, filled with lead (fig. 9).

A certain amount of raw material for making glass was discovered. Sand did not appear in perceptible quantities, but chunks of lime and pieces of quartz were found, as well as copper shavings and iron slag, which served as coloring matter (see technological report, pp. 325-327). The material of which the vases are made is almost uniformly well refined and free from impurities. Its excellent quality is rather surprising in view of the necessarily unfavorable conditions under which work was carried on. The glass contains no grit or sand, and comparatively few air bubbles, and in general the fabric gives the appearance of a compact mass. Even blowing spirals are little in evidence. A great many pieces were discarded, but not so many as might be expected. The refuse of the factory consisted largely of tag-ends of glass threads and coils, and of vases broken by accident, not of vessels damaged during the manufacturing process.

The method by which the pieces were manufactured is clearly similar to that used today. Vessels with smooth surface were generally blown without the use of a mould, but most of the vases were first blown into forms which bore some pattern on the inside, and then further blown after removal from the mould, in order to spread the pattern and give it less rigid outlines. Although not a single mould or fragment of a mould is preserved (they were probably of wood), it is obvious that their use was extensive. A great variety of patterns was produced (figs. 13, 17). After the vessel had been blown, a deep kick (pointed indentation) was sometimes made in the bottom with a reamer (a tool with a flat blade ending in a point) and then the pontil (a metal rod tipped with molten glass) was attached, covering the kick, so that the rim could be detached from the blow-pipe and rounded off. At this stage was added whatever applied decoration was to be used: coils, threads, prunts (small blobs of glass applied to the surface and left in relief). The shape of the body or neck might also be altered, and the finishing touches given. The pontil was then snapped off the vessel, in almost every case leaving a rough mark or bit of glass which the maker did not attempt to remove. After the vessel cooled, other decoration might be added. Very few specimens of cut glass have been found (fig. 17, no. 40; fig. 18, no. 55); possibly they were not made in the factory. The same may be true of the single small fragment of glass with patterns impressed from both sides with tongs (fig. 17, no. 43). Another type of decoration was produced by painting in colors on the glass after it had cooled. This method is discussed in connection with no. 51.

The large variety of colors which appears among the glass fragments is amazing, even though some of the shades may have been accidental (see analytical table, p. 327). Green is the prevailing color, in shades ranging through blue-green, olive-green, and yellow-green. There is also a wide diversity of shades of blue: light blue, turquoise-blue, dark blue, colorless¹⁰ with a bluish tinge. While no truly yellow glass appeared, some of the "colorless" glass has a definitely yellow tinge. A very few fragments, so small that no shapes are preserved, are of dark or light violet color. In addition to the colors mentioned, which are found in transparent or translucent glass, there was a certain amount of opaque glass, mostly red (see U in Table, p. 327), with a few fragments of pale green (H in Table, p. 327), turquoise blue (O in Table, p. 327), light blue, bluish white (V in Table, p. 327), and black. The rare occurrence of opaque glass indicates that it was seldom made, and possibly it was not produced in this factory at all, but transported in small batches, as needed, from the factory in Agora Northeast. In the remains of that establishment pots containing a residue of opaque red glass were discovered (fig. 10), whereas in the South Central factory only fragments of finished vessels appeared. About ninety-five fragments of opaque glass were found all together, and no two of these join. All of them are from rather small, thick-walled vessels, of which not a single shape can be entirely restored. The red color varies from "sealing-wax red" to a flat-toned dark reddish-brown and a deeper "burgundy." The color is seldom pure, usually having threads of darker red, brown, or black running through the fabric. These give the glass a decorative "marbled" effect. Possibly they are present because of the inability of the makers further to purify the material. Threads of opaque glass were applied as decoration to transparent vases, either marvered into the surface or left in relief.

In comparison with glass of the Roman period, the glass from the factory has suffered very little from the action of chemicals in the soil. The opaque glass shows no sign whatsoever of deterioration, and this is true also of most of the yellowish-green and olive-green pieces. The colorless and nearly colorless glass has weathered¹¹ most severely. It is usually incrustated with an enamel-like film, partly black and partly white, which reveals iridescence beneath when it is removed from the surface of a vase. The weathering of the blue glass is similar, but uniformly white, and with less noticeable iridescence. On most of the fragments the weathering has not reached an advanced stage, but consists mostly of the dulling of the surface in patches. In no case has the surface been entirely destroyed, as commonly occurs with Roman glass, and the type of weathering which pits the surface is practically non-existent.

Since glass vessels are rarely found in connection with a factory, every fragment that could be rescued from the earth has undergone careful examination, and an attempt has been made to restore all the shapes possible. Of some types of vases a great many fragments were found, of others only a few, and hundreds of pieces are

¹⁰ "Glass which shows no trace of coloration except at an edge or fracture" (D. B. Harden, *Roman Glass from Karanis*, Ann Arbor, 1936, p. 8). In the matter of describing colors, I have followed Harden's usage (*op. cit.*, pp. 6-8) as nearly as possible.

¹¹ The term "weathering" is used of glass in a loose sense. Deterioration of its surface is produced entirely under ground.

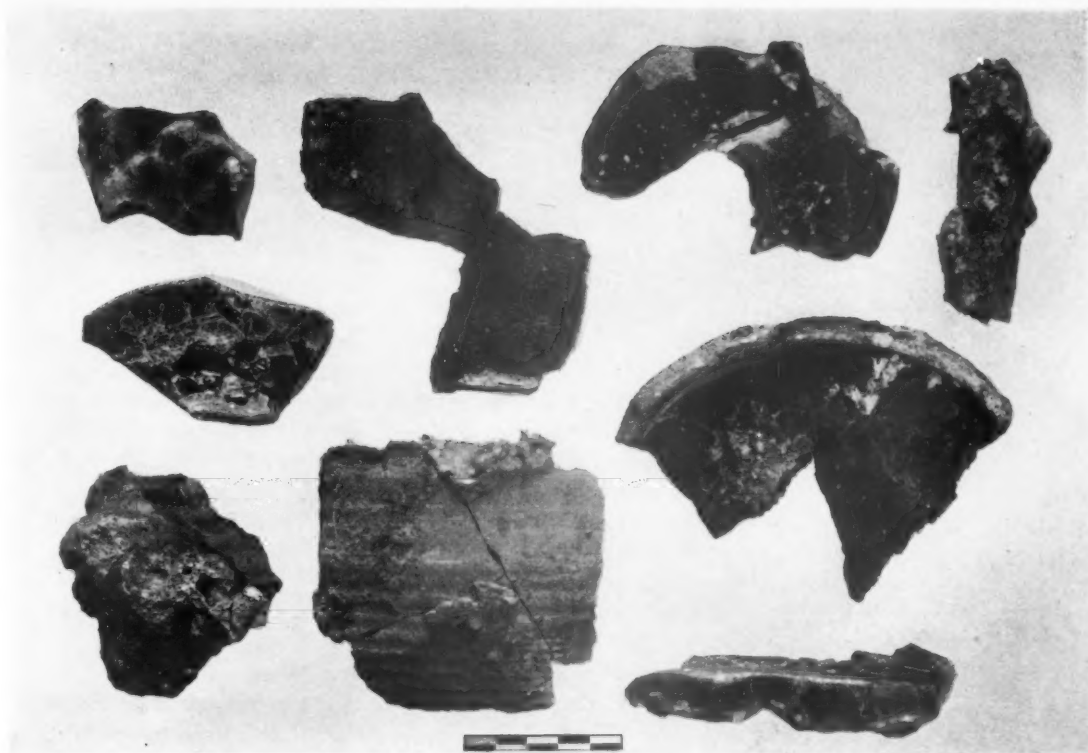


FIG. 10.—FRAGMENTS OF FURNACE POTS FROM FACTORY IN AGORA NORTHEAST

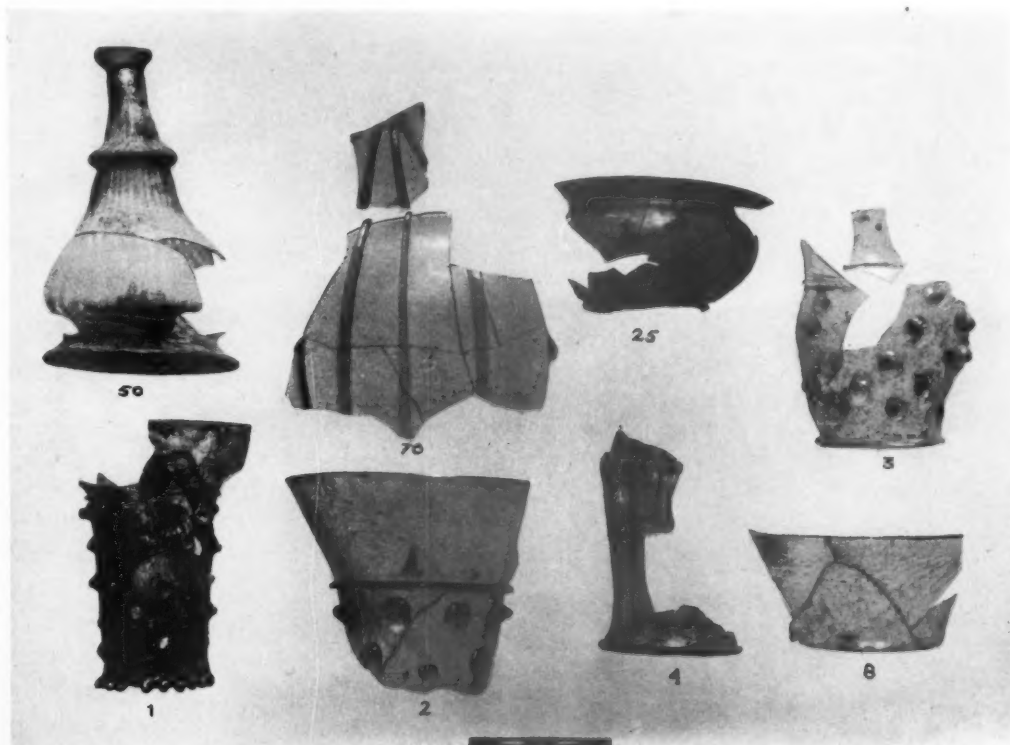


FIG. 11.—GLASS VESSELS

too small or indefinite in shape to warrant assignment to a particular vessel. In the process of restoration use has been made of the many glass vessels which, although found outside the limits of the factory, were evidently made there. There is little reason to doubt that most of the mediaeval glass found in the excavations at Corinth came from one of the city's factories, for no advantage could have been gained in importing these fragile objects when those of the best quality were ready to hand. In most cases it is fairly easy to identify products of the factory by the fabrics.

Since this article is designed primarily as a publication of the glass-factory, not of the vessels themselves, a formal catalogue will be omitted, and only a summary of the shapes presented.¹² The size of the vases may be seen from the metrical scales in the illustrations. State of preservation, weathering, and special characteristics of individual pieces are necessarily neglected. Many types of vessels were made at the factory: goblets and cups, bowls and plates, bottles, jars and lamps. Most of them are comparatively small and nearly all are quite fragile. Probably they were not intended for daily use, but as the service of a banquet or for decorative purposes.

A large number of goblets and cups appeared among the refuse of the factory. Five definite shapes, with a number of subdivisions, can be distinguished. The pruned goblets and cups (figs. 11, 12, nos. 1-3) are among the most common as well as the most interesting. Seventeen bases like that of no. 1 were found, varying in diameter from 0.035 m. to 0.06 m., as well as a great many fragments of other parts of the goblets. The material is almost entirely colorless (see S in Table, p. 327) and without defects, but partially covered with a tenacious "enamel" weathering which has slightly pitted the surface. This is the most severely weathered type of glass found in the factory. No. 1 is typical of all the pruned goblets, with the exception of no. 3. The wide rim, rounded at the edge and flaring from the cylindrical body, is separated from it by an applied thread of the same material. The body tapers slightly toward the base, which is formed by an applied coil, pinched out into rudimentary feet. The mark of the pontil is visible in the deeply pricked bottom. Prunts are applied in oblique rows all over the body. No. 3, although similar in conception to nos. 1 and 2, is the only cup of its kind found in the factory. Of a heavier, yellow-green glass, it has a slightly bulbous body and a rim resembling those of nos. 1 and 2, but lacks their graceful proportions. A coil of the same glass sets off the rim from the body, and a similar one forms the base. The prunts are less regularly placed than on no. 1, but are otherwise the same. These goblets form one of the earliest units in a long series reaching from the eleventh century in the Near East to a date as late as the sixteenth century in northern Europe. Despite the fact that a great many examples have been found in Egypt and in South Russia,¹³ it is generally believed that they are of Syrian origin. Because of the strong Egyptian influence on the Corinth factory, which will be demonstrated as other vases are discussed, it seems likely that this type of goblet came to Corinth through Egypt, rather than directly from Syria. A cup found in Egypt,¹⁴ assigned to the eleventh or

¹² A catalogue of the vases from the factory will appear in the general publication of the glass from Corinth (*Corinth XIII, The Miscellaneous Finds*).

¹³ C. J. Lamm, *Mittelalterliche Gläser und Steinschnittarbeiten aus dem nahen Osten*, Berlin, 1930, pp. 89-90 (pl. 27:15). See also Lamm, *Das Glas von Samarra*, Berlin, 1928, p. 85.

¹⁴ Lamm, *Mitt. Gläser*, pl. 21:7.

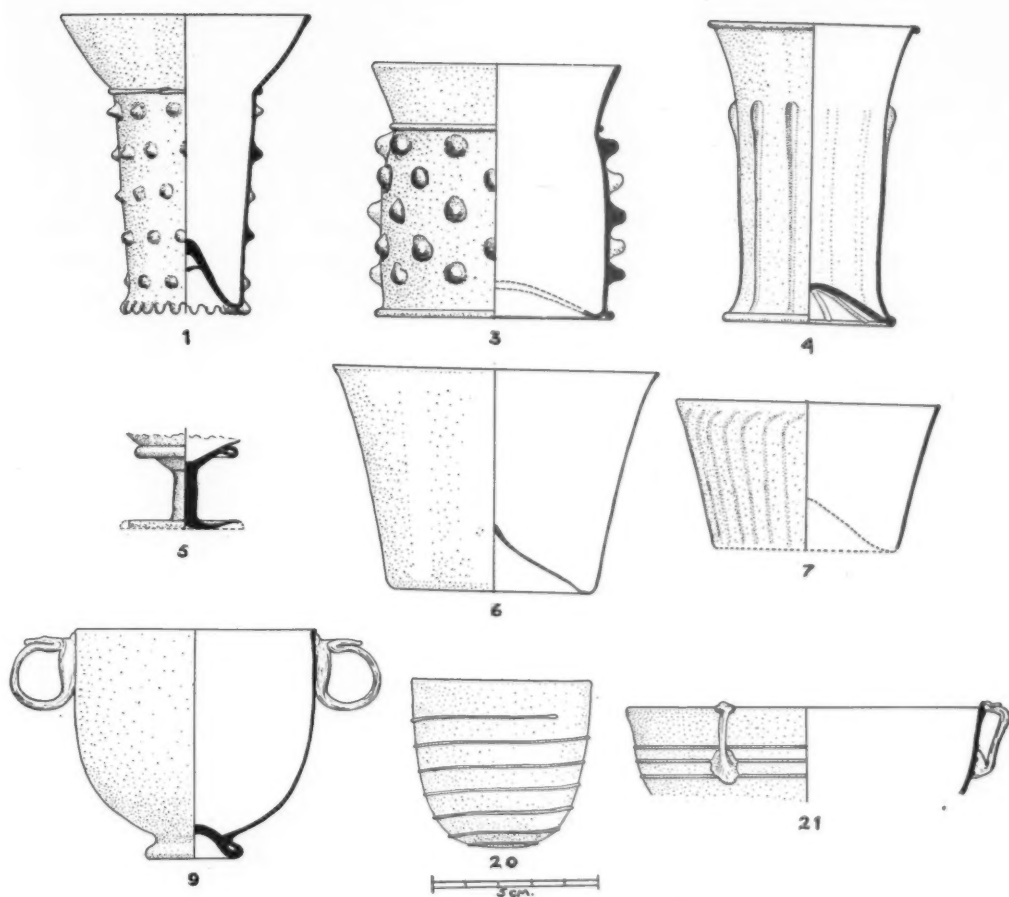


FIG. 12. — PROFILES OF GOBLETs AND CUPS

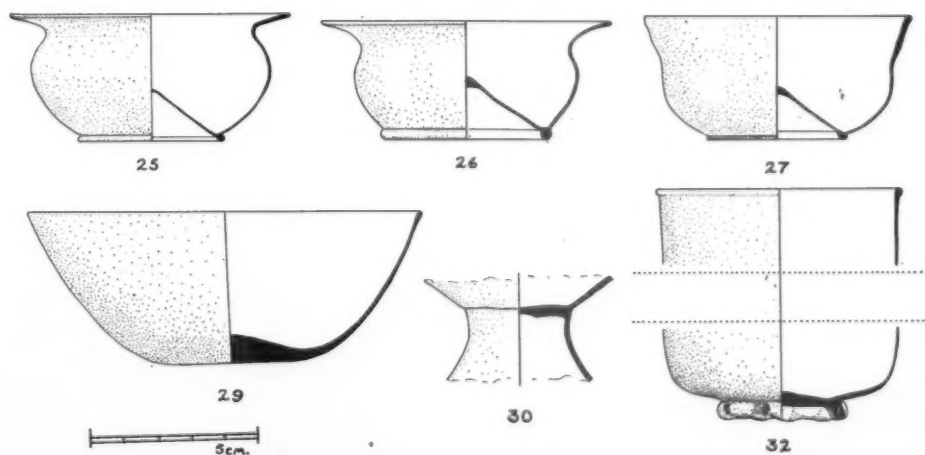


FIG. 15. — PROFILES OF BOWLS

twelfth century, is unmistakably related to our goblets, although the flaring rim is not so sharply set off from the body, a double, not a single, thread is wound around the bottom of the rim, and the multipled base is absent. The trail of these goblets after the twelfth century is a long and devious one to follow, and the gaps in it are treacherous. All over the Near East the shape persisted, usually without the pruned decoration.¹⁵ In South Russia a number of specimens have been found,¹⁶ and in Germany, where it was introduced ca. 1300,¹⁷ the shape developed extensively during the following centuries.¹⁸ It is possible that Greece was an intermediate stage between Syria and Germany, especially since the resemblance between the Corinthian and the German goblets is far closer than that between the German and those from farther east. But if the goblets were imported directly from Corinth, their introduction to Germany must date earlier than 1300, for it is unlikely that the Corinth factory survived the Norman invasion of 1147. More plausible is the possibility of transmission through the Norman Kingdom of Sicily, since the craftsmen from Corinth were probably settled there.¹⁹ A Greek-South Russian-German connection seems rather more dubious.

Slightly different in shape, but unmistakably related, are the ribbed goblets of pale blue or colorless greenish glass (figs. 11, 12, no. 4). The material is good, but usually covered with a clinging milky weathering. Although only a few fragments of this type were found in the factory itself, quite a number have been discovered elsewhere in Corinth. The shape is cylindrical, except for the slightly spreading rim and a corresponding flare at the base. An applied coil of dark blue glass finishes off the rim. Near the top the sides are smooth; below they are decorated with mould-blown vertical ribs, bulging at the top, and gradually fading into the surface toward the base. They continue on to the concave bottom of the goblet, interrupted by an applied coil which forms the base, and they also appear in faint relief on the interior. An examination of the comparative material brings forth no parallels as striking as those for the pruned cups, and evokes only in a general way the goblets of the Aleppo, Damascus, and Raqqa groups.²⁰ Apparently the type persisted for some time, but its development is hard to trace. Rather distantly related, and much clumsier in shape, is a German goblet of the early sixteenth century.²¹

A large number of stemmed goblets of various sorts has been discovered at Corinth, and in view of this it is strange that the débris of the factory should have produced but one, and that of a rare type (fig. 12, no. 5).²² This goblet is made of a

¹⁵ It appears in the thirteenth and fourteenth centuries, with enamelled decoration, in all of Lamm's groups. Cf. *Mitt. Gläser*, pl. 103: 8 (Fustat group: 1270-1340); pl. 127 (Aleppo group, thirteenth century); pl. 163 (Damascus group (ca. 1250-1310)).

¹⁶ Rademacher, *Die deutschen Gläser*, pl. 34a (exactly like the Corinthian goblets); cf. also Lamm, *Mitt. Gläser*, pl. 27: 15.

¹⁷ Rademacher, *op. cit.*, pp. 105-106. The connection between the Corinthian and the German goblets was first pointed out to me by Mr. W. A. Thorpe.

¹⁸ Cf. the "Krautstrunk," a more closed form of cup which began ca. 1450 (Rademacher, *Die deutschen Gläser*, pp. 111-115), and is obviously an adaptation of the earlier pruned goblets.

¹⁹ See p. 324. Owing to the lack of publications of mediaeval Italian glass, this theory must remain for the present wholly hypothetical.

²⁰ See note 15, above.

²¹ Rademacher, *Die deutschen Gläser*, pl. 30, c, and p. 98.

²² No. 5 was not actually found in the factory, but it is identical in shape with a goblet from the factory and is used for illustration, since it is a better specimen.

rather bubbly turquoise-colored glass, with conspicuous blowing spirals, and covered with a milky weathering. It is composed of three paraisions (blobs of glass), and the process of making it must have been lengthy and troublesome. The lower part of the bowl was first blown into the shape of a bulb, which was folded in upon itself, leaving a tubular ring around the edge. This paraision was then held by a pontil, while the paraision for the stem and base was added and formed, and the edge of the base rounded off. The first pontil was then removed, another attached to the base, and a third paraision applied to the top of the bowl in the form of a very thin sheet of glass which projected (how far we cannot tell) beyond the edge of the tubular ring. The bowl was probably wide and shallow, like that of a champagne cup. Only two recognizable fragments of such goblets have been found at Corinth, and I know of none found elsewhere. The commoner types of goblets are represented in the factory by a single small piece, apparently a waster. Another Corinthian factory, of which no traces have yet been discovered, probably produced these goblets. Although this supposition must remain unsupported, it seems more reasonable than to assume that cheap goblets were imported while elaborate pieces were being produced in the local establishment.

The commonest type of vessel produced in the factory is a simple cup (fig. 12, nos. 6, 7, and fig. 11, no. 8). It has a wide mouth and its sides taper toward the bottom, which is deeply pricked and has a pontil mark. The rims of these cups are generally rounded off, sometimes folded, and in one case finished by the application of a blue coil. They are made of very thin, delicate green glass, occasionally tinged with blue (F in Table, p. 327) and have almost the same thickness throughout. Hundreds of fragments were discovered, including about 120 bases, the diameters of which vary from ca. 0.04 m. to 0.075 m. The height also varies considerably. All the cups were mould-blown, and often the blowing was continued after removal from the mould: Nearly every cup bears a pattern in relief on the sides, usually beginning some distance below the top, and in some cases continuing to the bottom.

Three of these patterns, her-ring-bone and two varieties of ovals, are pictured in fig. 13. The other patterns are circles or variations on the ovals. The cups with her-ring-bone pattern are usually deeper than the others.

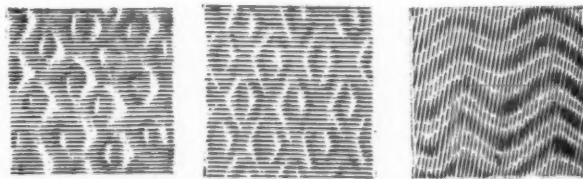


FIG. 13.—PATTERNS FROM MOULD-BLOWN CUPS

The large quantity of these cups which came to light implies an everyday use and, despite their extreme fragility, it seems likely that they were drinking cups. Their life must have been short, for they could be crushed between the fingers with a single thoughtless motion, but they were cheap and easy to produce, and required only a single paraision. They provide the nearest approach to "mass production" to be observed in the factory. The shape may have originated in Egypt, where similar cups of a somewhat earlier date have been found.²³ Later it traveled, probably by the same route as the

²³ Lamm, *Mitt. Gläser*, pl. 24:4 (ninth–eleventh centuries). This cup, unlike the Corinthian specimens, is free-blown.

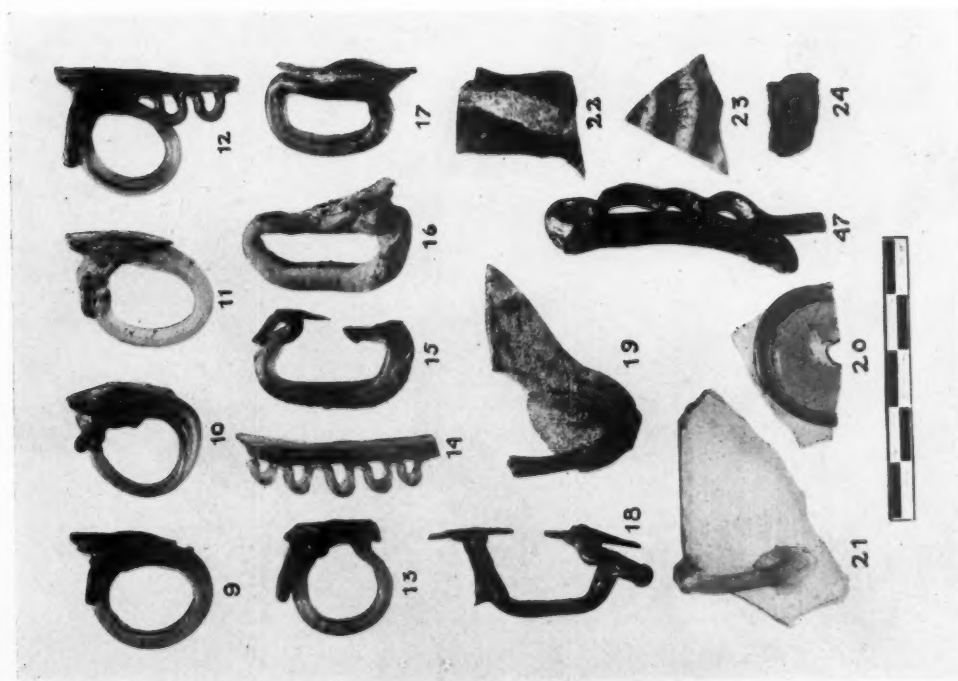


FIG. 14. — FRAGMENTS OF CUPS AND JAR (47)

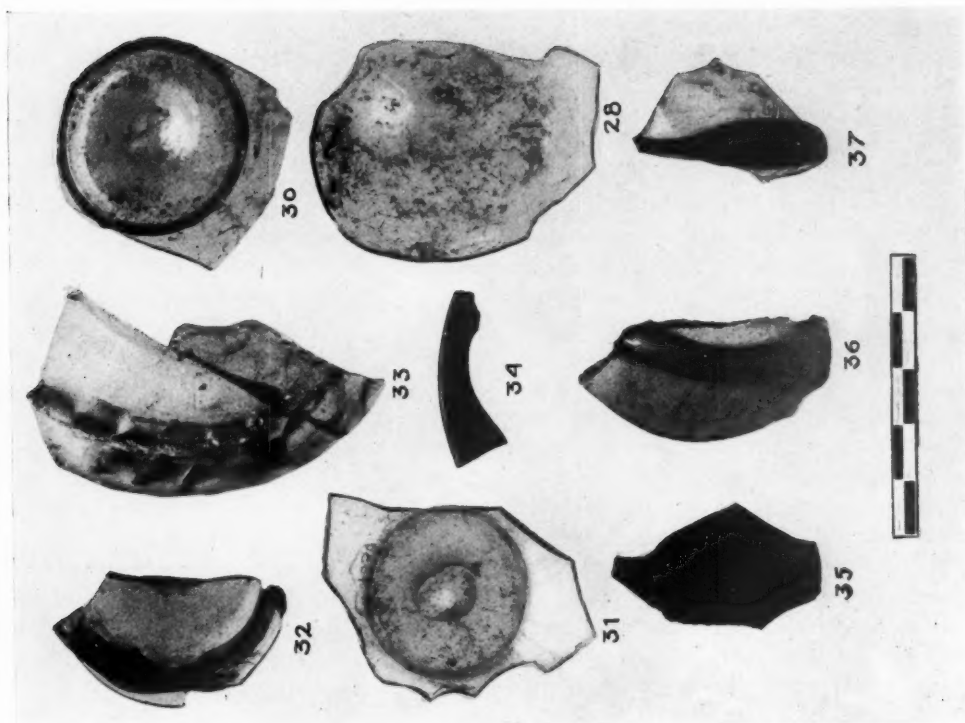


FIG. 16. — FRAGMENTS OF BOWLS

prunted goblet, into mediaeval Germany.²⁴ Here the cups were made of a heavier glass, but in all other respects they are strikingly similar to the Corinthian pieces. Although an Eastern origin has hitherto not been suggested for the German cups, it is almost necessary, in view of the Corinth finds, to assume the connection.²⁵ The transition from these glasses to the modern tumbler is apparent.

With the aid of a great many fragments which seem to belong together, though few join, a two-handled drinking cup has been restored (fig. 12, no. 9, fig. 14, nos. 9-11). Although the exact proportions may not have been accurately restored, the general shape cannot be doubted. The variety of colors in which the cups were made: green, opaque red, light blue, violet, contrasts with the similarity in shape which they all display. In each case where the handle is preserved, a small part of the body still adheres, so that the diameter of the mouth can be fairly well determined, and from this it appears that the size varied little. The rims are rounded, the sides nearly straight, curving into the small, thick, tubular base-ring. The handles, attached about one millimetre below the rim, are formed from a coil of the same material as the cup, bent into a ring. The upper end of the coil was pulled out and flattened with a reamer. Because of the small size of the handles, it is presumed that each cup had two. A few fragments with ring-handles also have a flat coil of the same glass extending in loops from under the handle down the side of the cup (fig. 14, nos. 12-14).²⁶ The loops are not laid directly on the cup, but, in order to strengthen them, on another flat coil of glass, and this suggests that the looped coil was extended to form feet.²⁷ When the handle was combined with the foot, there may either have been three handles and three feet, or two handles and four feet, the ribbons of the extra two feet extending only part way up the sides of the cup, as in the Egyptian example just mentioned. Many fragments of the rims of small cups have no handles attached, and some may always have lacked them.

Other fragmentary handles may be seen in fig. 14. Nos. 15-17 are also made of coils. It is not at all clear to what kind of vessels they belonged. No. 18, of opaque red glass, is attached to bits of a cup which seems to have had a body constricted in the middle. The form of no. 19, a cup or bowl of light green glass, is in doubt.

No. 20 (fig. 14) is the base of another type of cup made in the factory (restoration of it—not to scale—in fig. 12). Although numerous small fragments have been found, there is not a single complete specimen. Despite this, the shape is fairly certain. The rather thin material is of various shades of green, yellow-brown, and opaque red. The rims are rounded, or, less often, finished with an applied thread. A coil wound around the body, always of the same color as the cup, is its characteristic decoration. At the bottom, where the spiral begins, the coil is thick and somewhat uneven, forming a base; it spins out to a thin thread before the end is reached, ca. 0.01 m. below the rim. The lower portion of an identical cup has been found in

²⁴ Rademacher, *Die deutschen Gläser*, pp. 94 ff. and pls. 23, 24 (fifteenth century).

²⁵ Rademacher, *Die deutschen Gläser*, p. 95, states that the use of the mould for glass-blowing was probably discovered independently by the German glass-blowers. This assumption is almost impossible in view of the demonstrated German connections with the Near East.

²⁶ The "side-whisker handle"—(Harden, *Roman Glass from Karanis*, p. 16).

²⁷ Cf. a straight-sided, flat-bottomed cup with impressed designs, which stands on three feet. It is Egyptian, eighth-ninth centuries (Lamm, *Mitt. Gläser*, pl. 19:2).

Egypt, and is dated to the tenth or eleventh century.²⁸ Many tiny fragments, possibly of cups like no. 20, have rims trimmed with an applied thread of a contrasting color. No. 21 (figs. 12, 14) is unique in having a handle as well as a spiral coil. Nos. 22 and 23 (fig. 14) are the only fragments of cups with marvered-in coils, and their identification is uncertain. No. 22 is of colorless glass with opaque red decoration; no. 23 blue, with white coils worked in a ribbed pattern.²⁹ During most of the mediaeval period this pattern was common, and it seems to have varied little throughout the centuries. No. 24 (fig. 14), a fragment of dark blue glass with incised designs, is so small that its classification as part of a cup must be conjectural.³⁰ Since the piece is unique at Corinth, we may perhaps assume that the vessel of which it was a part was imported.³¹

Bowls and dishes of various sorts were found in large numbers. The most attractive as well as the rarest are shallow vessels with bulging body and wide, out-splayed, rounded rim (fig. 11, no. 25; fig. 15, nos. 25-27). The bottom is deeply indented, and a solid coil provides a base. Pieces of only six or eight of these were found, all of a very delicate, well refined dark blue glass (K in Table, p. 327), except one which is of a thicker opaque red. The blue pieces are covered with a slight milky, partially iridescent weathering; the red is unweathered. No two bowls are exactly alike, the variation due chiefly to the formation of the rim. Foreign influence is not apparent.

Numerous fragments of flat-bottomed bowls in various shades of green and blue appeared, none sufficiently well preserved for measurement (fig. 16, no. 28). The diameter of the bases probably varied from about 0.06 m. to 0.10 m. The type to which they belong is exemplified by a nearly complete bowl (fig. 15, no. 29) found in 1934 in a deposit of contemporary pottery elsewhere in the Agora.³² The walls are of a fairly heavy, well refined material, and the rim is rounded. The sides slope gently into the thickened, slightly concave bottom, which bears a pontil mark. This is a far more substantial vessel than most of those produced in the factory, and it was doubtless cheap and popular.

No. 30 (fig. 15) is a composite of two fragments (fig. 16, nos. 30 and 31) of similar bowls, the former yellow-brown, the latter light green. Both top and bottom are broken, leaving only the high flaring base and a suggestion of a widely spreading body. The bottom is practically flat, with a pontil mark. In general appearance these bowls are similar to one from Egypt from "about the tenth century"³³ but it differs both in details and in fabric.

Two bases, one dark green (fig. 16, no. 32), one yellowish-green (fig. 16, no. 33),

²⁸ Lamm, *Mitt. Gläser*, pl. 26: 2.

²⁹ Cf. Lamm, *Mitt. Gläser*, pl. 29 and pp. 95-99.

³⁰ Lamm's statement (*Das Glas von Samarra*, p. 80), that this type of incised glass is usually found in bowl-shaped cups with flat rims, or rims thickened by a sort of rib, is responsible for its being placed here.

³¹ In *Das Glas von Samarra*, pp. 79-82, this type of glass is thoroughly discussed. Lamm's opinion is that it came most likely from Egypt, less probably from Syria or Iraq, and still less possibly from Persia. The dates of the Samarra glass are too early for our piece, but the latter is too insignificant to allow for the making of generalizations on the basis of it alone. Most like our piece is no. 256, pl. VIII, in *Das Glas von Samarra*. Cf. also Lamm, *Mitt. Gläser*, pls. 50, 51.

³² See Charles H. Morgan II, "Several Vases from a Byzantine Dump at Corinth," *AJA.* xxxix, 1935, p. 78, fig. 4, a.

³³ Lamm, *Mitt. Gläser*, pl. 45: 12; 46: 24.

belong to a type of bowl which has been more commonly found outside the factory (fig. 15, no. 32). The straight, thin sides end above in a rounded, slightly thickened rim; below, they curve sharply to form a small folded base which is pinched together at intervals, making an irregular pattern of air bubbles. No. 33 is remarkable for the extreme thickness of the base and bottom in conjunction with paper-thin walls.

Of other types of bowls only single, rather dubious fragments have been found. No. 34 (fig. 16), of dark red opaque glass, has an infolded rim, flaring slightly from the body of the vase. The rest of the shape is unknown. Nos. 35 and 36 (fig. 16) are two fragments of bowls with heavy ribs, reminiscent of the ribbed glass popular in the Roman Imperial period. In no. 35, of opaque brick-red glass, the rib is straight,

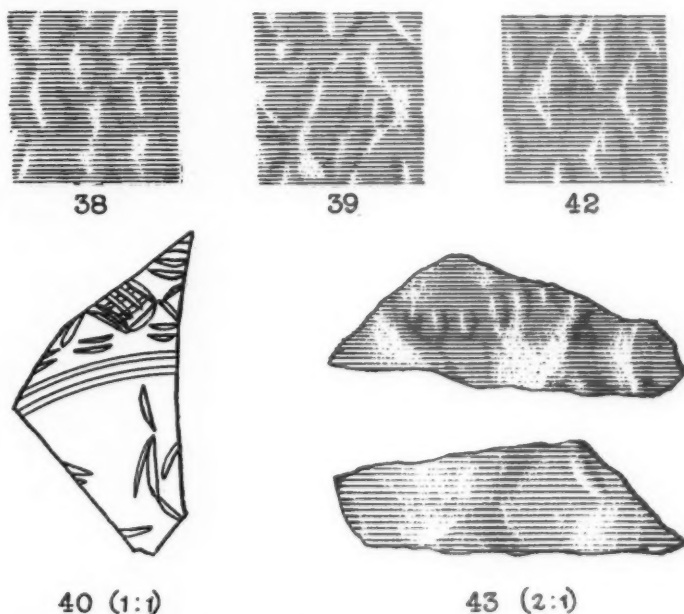


FIG. 17.—PATTERNS AND FRAGMENTS FROM BOWLS AND PLATES

merging at top and bottom into the surface; in no. 36, of green glass, the rib is thicker, curved, and was probably pinched out, not mould-blown. At the lower end it merges into the surface of the bowl. No. 37 (fig. 16), a fragment of colorless glass with greenish tinge, is decorated with a drop-shaped coil of dark green glass, applied to the surface.³⁴ A few pieces of unusually thick-walled bowls with mould-blown designs appeared (nos. 38, 39). The patterns are shown in fig. 17. Nothing in Lamm's large collection of mould-blown vases³⁵ is quite like these. Only one fragment of a bowl with wheel-engraved pattern was found (fig. 17, no. 40). Of a light

³⁴ Compare for the technique Lamm, *Mitt. Gläser*, pl. 21: 11, a cup from Fustat, assigned to the tenth or eleventh century.

³⁵ *Mitt. Gläser*, pls. 9–14. He states (p. 51) that although Syria is "the classic land of mould-blown glass," it was probably made elsewhere as well, especially in Egypt.

green material, and reminiscent of Roman cut glass, it may well have been imported from Egypt, where the type was common.³⁶

No. 41 (fig. 23), though extremely fragmentary, yet is of interest, since it is alone of its kind in the factory. Part of a vessel of dark blue, almost opaque glass, its curved surface suggests that it came from a bowl. To this surface is applied a mould-made medallion in the shape of a female head, with features largely obliterated. The hair is arranged on top of the head in a low pompadour, with regular waves on the forehead and down the sides of the face. Although exact parallels for it have not been found, its Egyptian aspect is not to be mistaken.³⁷ The severe milky weathering of the surface has given the piece an appearance of greater antiquity than it actually possesses.

Flat plates were rarely if ever produced in the factory. The few pieces possibly to be identified as such are of a doubtful character. No. 42 is a dark green piece with a mould-blown pattern (fig. 17), no. 43 (fig. 17) a fragment of a thick, dark blue material with a pattern impressed from both sides with tongs.³⁸

The few fragments of jugs and jars which have been found are so indefinite and differ so widely that they defy classification. None is even approximately complete, and in no case are all the features known. No. 44 (fig. 18), of thin colorless glass, has a thickened, rounded rim and a cylindrical neck on which a lug is pinched out. It may be imagined that the body was bulbous, but there is no trace of the widening on the preserved piece. The vase when complete may have been about 0.15 m. high. Nos. 45 and 46 (fig. 18), of greenish-blue and olive-green glass, respectively, represent a number of similar fragments, possibly of jars, of which nothing more is preserved. In one case (no. 45) the rim is formed by folding the rounded edge of the vase outward, in the other (no. 46) inward. The shape of the rest of these vases is unknown. Other fragments, negligible in all but numbers, preserve parts of jugs which are known to have had constricted necks and widely spreading bodies and rims. The unique fragment no. 47 (fig. 14), of violet-colored glass, is a part of the thin wall of a bulbous-bodied vessel which has a coil of the same material applied to the outside from the bottom upward and looped back upon itself. Flattened at intervals with a reamer, it gives a looped-ribbon effect. From the presence of this coil it may be imagined that the vase looked something like one found in Sakkara.³⁹

One fragment of the base of a lamp was found, of opaque reddish-brown glass (fig. 19, no. 48). A small spherical knob finishes off the bottom, and above this the body flares widely. There is no indication of the shape of the upper part.⁴⁰

³⁶ Cf. Lamm, *Mitt. Gläser*, pl. 56: 2, found in Egypt, and probably from the eighth century. Although similar in technique, it seems somewhat coarser.

³⁷ Cf. C. C. Edgar, *Graeco-Egyptian Glass*, pl. X, 32.762-32.768, also p. IV. These are similar moulded medallions representing various subjects: comic mask, lion, female head. No definite date is assigned; they are said to be from "Roman and Byzantine times," and are called "prototypes of stamped disks," used to certify weight or measure. This is hardly an accurate statement, even when the question of chronology is ignored, for the purpose of the latter was commercial, that of the former purely decorative.

³⁸ The only fragment of its kind from the factory. The method by which it was produced was pointed out to me by Mr. D. B. Harden. For a short discussion of the technique see Lamm, *Mitt. Gläser*, p. 62.

³⁹ Lamm, *Mitt. Gläser*, pl. 28: 16. It is dated sixth-seventh century.

⁴⁰ Cf. a lamp of the seventh-ninth centuries, from Syria, which was made either there or in Egypt (Lamm, *Mitt. Gläser*, pl. 30: 20).

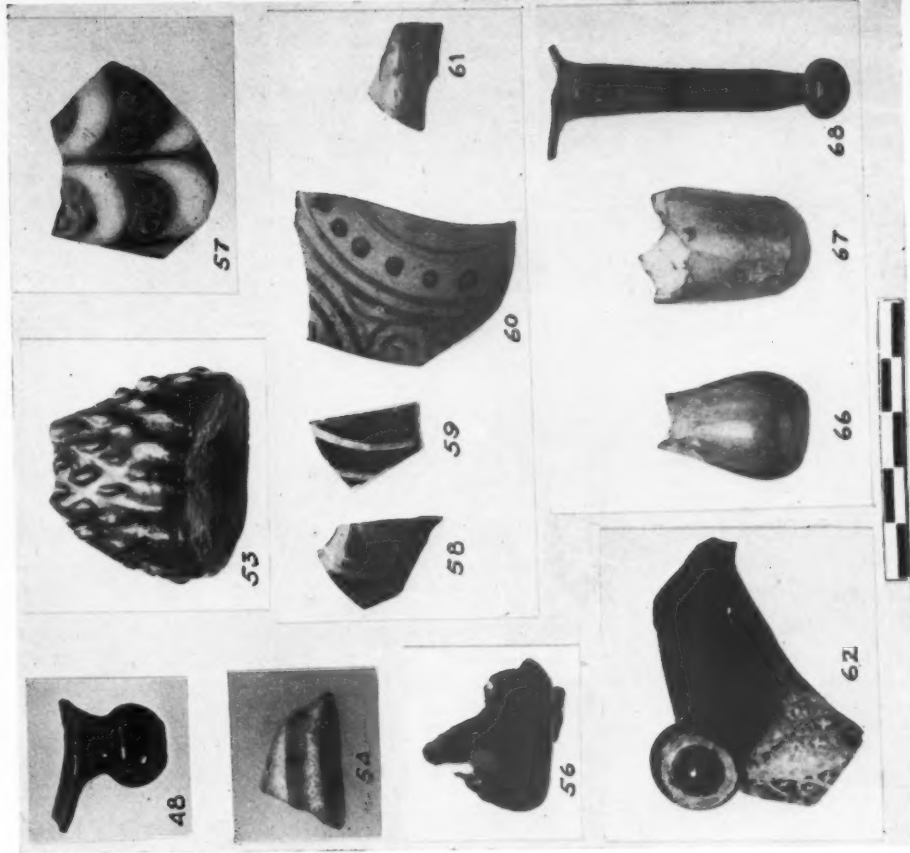


FIG. 19.—FRAGMENTS OF LAMP AND BOTTLES

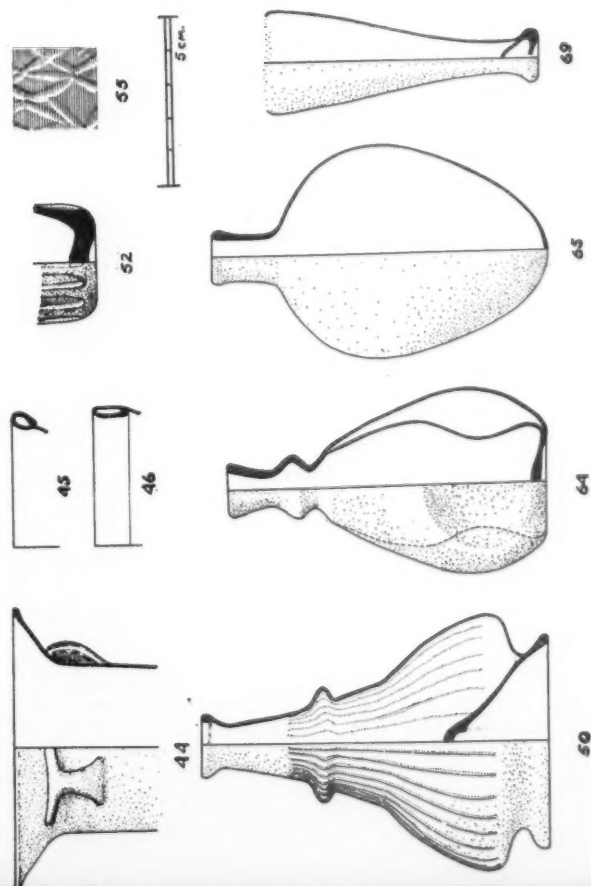


FIG. 18.—PROFILES OF JARS AND BOTTLES



FIG. 20.—PAINTED BOTTLE



FIG. 21.—PAINTED BOTTLE
(WATER-COLOR RESTORA-
TION)

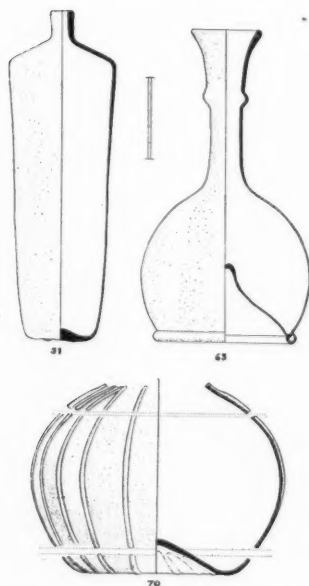


FIG. 22.—PROFILES OF BOTTLES



FIG. 24.—FRAGMENT OF PAINTED BOTTLE (LAMM
Mitt. Gläser, PL. 41:28)



FIG. 25.—FRAGMENT OF PAINTED BOTTLE
(LAMM, *Glass from Iran*, PL. 45, B)

The fragmentary character of the single spout from the factory (fig. 23, no. 49) makes it impossible to determine the shape of the vase to which it was attached, or even the entire shape of the spout itself. It is conical, of a thick, light green glass.

Ten different shapes of bottles can be distinguished, some occurring in great quantities, others represented by only a single specimen. No. 50 (figs. 11, 18) is one of the most common: a small squat bottle of thin, light blue glass (I in Table, p. 327). It has a folded rim, a cut-out bulge in the neck, a deeply pricked bottom and a folded base. The mould-blown ribs are deepest on the neck, gradually fading into the surface as they extend downward. Twenty-three necks of such bottles were found, and ten bases ranging in diameter from 0.065 m. to 0.07 m. Three bases are of opaque glass, two brick-red, one turquoise-blue. This was a shape widespread in the Near East. A striking resemblance is to be noted between these bottles and those of the thirteenth-century Aleppo and Damascus groups.⁴¹ Bottles somewhat similar, without bases, of the twelfth to fourteenth centuries, have been found in Persia.⁴²

Perhaps the most interesting bottles are those from a large group, their general features a long, cylindrical body, curving into a flat bottom which has no base, and a short neck terminating in a rounded, often unevenly finished rim (figs. 20, 21, 22, no. 51; fig. 18, nos. 52, 55; fig. 19, nos. 53, 54, 56-62). The bottles of this type are usually of dark blue glass, but there exist single specimens of light blue, yellow-green, and blackish-brown. As many as five different techniques were used in decorating the bottles: blowing into a mould, cutting, marvering⁴³ in blobs and coils, painting, and a combination of painting and marvering coils.

Of the mould-blown bottles only two small thick-walled fragments remain: no. 52 (fig. 18) ribbed,⁴⁴ and no. 53 (fig. 19) with raised blobs in oblique rows. The former is yellowish-green, the latter opaque brown, with a thread of black running through.

Two fragments with cut decoration are preserved (fig. 19, no. 54; fig. 18, no. 55), both so small that their assignment to this shape must remain uncertain. No. 54, of thick colorless glass, is part of the bottom and side of the bottle, with two deeply cut horizontal grooves.⁴⁵ No. 55 has a more elaborate pattern.

The bottles with marvered-in decoration are also few. No. 56 (fig. 19) is a thick opaque piece of the bottom and side, showing a deep violet color at the fracture. Blobs of opaque light blue and white glass are marvered into the surface in a now indeterminable design. Another tiny fragment (not shown here), of translucent greenish-blue glass, has opaque white coils marvered in in horizontal stripes, perhaps interspersed with a wave pattern. No. 57 (fig. 19) is more elaborate: opaque

⁴¹ See Lamm, *Mitt. Gläser*, pl. 140; pl. 162: 3.

⁴² Lamm, *Glass from Iran*, Stockholm, 1935, p. 10 and pl. 20, f.

⁴³ The marver is a flat slab on which a vessel can be rolled.

⁴⁴ Cf. Lamm, *Mitt. Gläser*, pl. 8: 7, which seems quite like no. 52. Found at Memphis, in Egypt, it is dated to the eighth century. See also Edgar, *Graeco-Egyptian Glass*, p. 83, pl. 11, no. 32789 (a photograph of the same bottle as that sketched in *Mitt. Gläser*, pl. 8: 7), and also p. V.

⁴⁵ The technique of cutting glass in this fashion is described by Lamm, *Mitt. Gläser*, pp. 142-143, and the different varieties there fully discussed. The last category (p. 144) is probably that under which our fragment falls (Egyptian: ninth-twelfth centuries).

white coils are marvered into the light blue glass in a continuous loop pattern, and between the loops scroll designs are painted in gold, with gold lines dividing the loops vertically.⁴⁶ The painting was done after the glass had cooled, and was fixed on by muffle-firing (see technological study, p. 326).

A number of fragmentary bottles painted in this manner, but lacking the marvered-in coils of no. 57, were discovered. Several patterns were used. The most common, appearing on one nearly complete vase (figs. 20, 21, 22, no. 51) and on fragments of four others (fig. 19, nos. 58-61), all of which are of dark blue glass (M in Table, p. 327), consists of medallions containing birds, painted gold, within a border of green, yellow, gold, or red lines, or a combination of several of these colors. No. 51 has three rows of medallions bordered with red and green stripes, and three medallions in each row (see restoration, fig. 21). The birds within them, facing either left or right, resemble closely those on *sgraffito* pottery, and details of their plumage are also indicated as on these vases by lines incised in the gilt paint. Conventionalized gold branches with yellow-green leaves fill in the field of each medallion, and gilt work occupies the space between them. The rim and neck of the bottle are painted solidly gold; on the shoulder are golden rays, and around the edge gold and green scroll work between double bands of green. Two wide horizontal stripes, green and red, finish off the sides near the bottom. The circles outlining the medallions were made with a compass, the rest painted freehand. Accuracy in the placing of the circles was not always obtained, so that the outer circles often interlock or leave space between. In the latter case additional golden scrollwork fills the space. Each fragment has differently bordered medallions, but the central motive of the bird is identical wherever preserved. These bottles are of special interest since Theophilus, in giving his account of the manufacture of glass (see also p. 304), describes vases which must have resembled these closely. His description of their preparation runs as follows:

" . . . They take gold or silver which has been ground in a mill . . . , mix it with water, and make with it circles, and within these, pictures either of beasts or birds . . . and these they cover with very clear glass. . . . Then they take white, red, and green glass . . . , rub each carefully by itself with water on a piece of porphyry, and with it paint little flowers and knots and other little things, with decorations between the circles (and knots), and a border around the edge. This is laid on fairly thick, and then fired in the oven. . . ." ⁴⁷

With the exception of one phase of the preparation—the layer of glass placed on the vase after the gilded portions had been painted on—which was not used on the Corinthian specimens, the detail with which this description fits no. 51 and other fragments is little short of amazing. One would give a good deal to know where it was that Theophilus observed the manufacture of glass. The resemblance of these bottles to pieces found in Egypt ⁴⁸ is equally startling, and since it is the chief point

⁴⁶ Cf. the pieces shown in Lamm, *Mitt. Gläser*, pls. 104-106 (also color plate C: 1), dating from the thirteenth century. *Ibid.*, pl. 105: 15 shows the shape of the bottle from which our fragment came. Though Syrian in origin, most of the fragments illustrated by Lamm were found in Egypt.

⁴⁷ A free translation of a portion of Book II, chap. XIV, of Theophilus Presbyter, *Diversarum Artium Schedula* (Ed. Theobald). The words *and knots*, in parentheses above, are not found in one Ms. (see Ed. Ilg. Vienna, 1874). Better sense is made without them, and their presence may be the result of dittography. For the composition of the paints, compare the technological report, pp. 326-27.

⁴⁸ Lamm, *Mitt. Gläser*, pls. 41: 28 (color plate A, 12); 42: 3 (color plate A, 9); 43: 10-12.

for the proof of the origin of the factory, it is treated in that connection on page 323. A simpler painted pattern is shown on no. 62 (fig. 19), a fragment of the neck and body of a bottle, of brown-black glass. A rising scale pattern is painted in whitish-blue, and a gold cross within each scale.

No. 63 (fig. 22) is a type of bottle found commonly at Corinth outside the factory, but seldom in it.⁴⁹ It is made of a very thin, light greenish-blue glass, and has a rounded, thickened rim, long narrow neck with cut-out bulge, and bulbous body ending in a tubular base-ring and deeply pricked bottom. It was doubtless a carafe, and is often found in conjunction with drinking cups like nos. 6, 7, and 8. It seems to bear no definite affinity to other bottles from the surrounding Near East.

No. 64 (fig. 18) is likewise of a type more common outside the factory, but the few fragments found among its remains leave no doubt that such bottles were made there. The material is a fine dark green or yellow glass. The body is flat-bottomed, with two large thumb indents in the sides, opposite each other. The short neck has a cut-out bulge and ends in a rounded, thickened rim. Fragments of bottles with an inverted piriform body like no. 65 (fig. 18—a restoration) were found in considerable quantities. The glass is of various shades of green. Characteristic of the shape are the rounded rim, short cylindrical neck, and round bottom. The bottles would have had to be set in a stand or carried in a net for toilet use. Numbers of tantalizingly incomplete bottles came to light. Nos. 66 and 67 (fig. 19), for example, both of very thick light green glass, are fragmentary drop-shaped bottles, perhaps the successors of the Roman *unguentaria*. No. 68 (fig. 19), a curious fragment of olive-green glass, has a long solid stem ending in a small knob cut roughly from the pontil. Above the stem the body begins to spread widely; the rest of the form is unknown. No. 69 is completed to some extent by a similar bottle of very delicate olive-green glass found outside the *agora* (fig. 18).⁵⁰ Its conical body just begins to contract where it is broken off at the top, and it has a rather curious foot, not quite stable enough for it to stand on. The neck, to judge from an apparently similar bottle of the ninth century from Samarra,⁵¹ was probably short and slightly spreading.

An incomplete but beautiful shape is exhibited by no. 70 (figs. 11, 22). The material is a fine light blue in color, with a slight milky weathering. The whole preserved surface of the bulbous body with its concave bottom is covered with vertical ribs made by applying coils of the same material. On the shoulder of the bottle they stand out in relief; lower down they are partially marvered in, and extend to the very centre of the bottom. There is no clue to the shape of neck or rim, but it is perhaps permissible to deduce a long neck somewhat like that of no. 63. I know of no parallel for this specimen. Nos. 71 and 72 (fig. 23), two small pieces of pale green glass, may have belonged to lids of bowls or other vessels. Each has threads of glass, white or light blue, applied in an arc on one surface. Fragments of other vessels are too insignificant to warrant discussion. The main types have been presented here in as complete a form as could be obtained in view of the condition of the material.

⁴⁹ No. 63 is not an actual profile, but a drawing of the general shape, as no bottle from the factory was sufficiently preserved to provide an entire profile.

⁵⁰ *AJA.* xxxix, 1935, p. 78, fig. 4b.

⁵¹ Lamm, *Das Glas von Samarra*, nos. 83-88 (called tear-bottles).

In addition to vases, a few miscellaneous objects were produced in the factory. Quite a number of fragments of circular window-panes were discovered, made of dark blue glass or various shades of green (fig. 23, nos. 73-76). In their present state each of these consists of a flat, circular piece of glass, with the edge folded over to

form a flat, double rim. The diameters vary little: from ca. 0.13 m. to ca. 0.19 m. Originally they were convex, almost hemispherical in the centre, resembling bosses. Such window-panes have been found at Samarra, where they date from about the ninth century.⁵²

Objects for personal adornment were also manufactured, although those found were few and insignificant. A single fragment of a glass bracelet (fig. 23, no. 77) is of dark blue glass, rectangular in section with bevelled edges. No trace of a painted design, such as was common on these bracelets, remains. Egypt was the source of the models of most of these bracelets. There they were

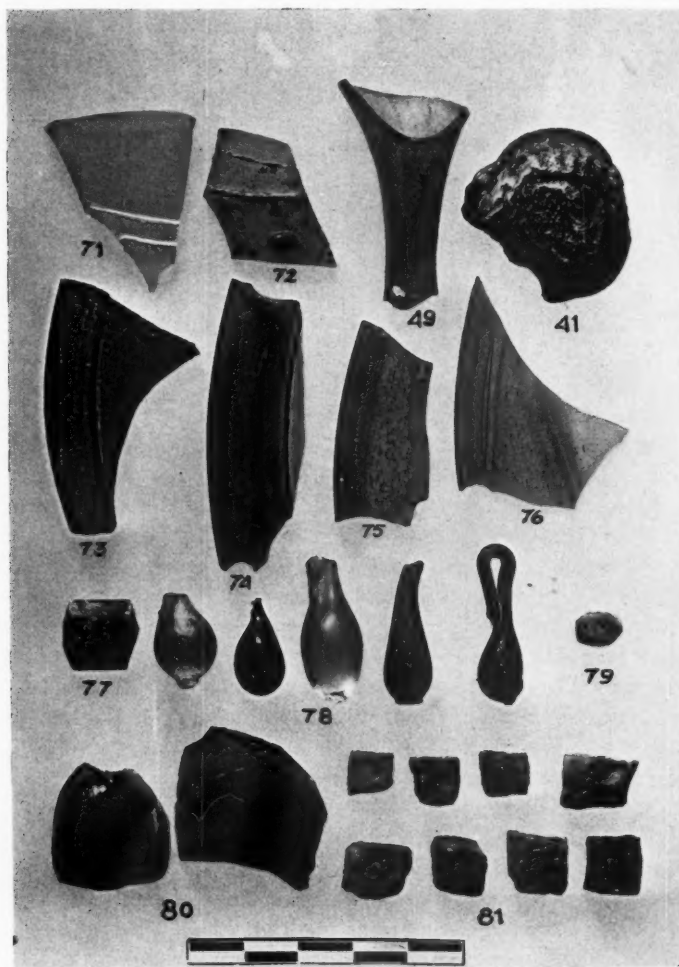


FIG. 23. — MISCELLANEOUS GLASS OBJECTS

made all during the Middle Ages and are still being produced today. A small group of pendants was found (fig. 23, no. 78), three of a light green color, one violet, and one opaque red. They are drop-shaped, the upper end of the drop lengthened into a coil which is doubled over to form a suspension loop. The bottom of each has been sharply snapped off from the paraison, leaving a flat surface with rough edges. Beads

⁵² See Lamm, *Das Glas von Samarra*, p. 125 and pp. 127-128; pl. 14, N. *Ibid.*, fig. 72 shows how they were fastened into the window-frame. These panes are discussed also in *Mitt. Gläser*, p. 11.

are rare among the objects from the factory. One tiny hexagonal bead (fig. 23, no. 79), of opaque light green glass, is preserved to half its length. A group of curious objects, only two of which are illustrated (fig. 23, no. 80) may be beads. Nearly all are of green glass (E in Table, p. 327). Not one is complete, so that the original shape is doubtful. Each is pierced, and in the hole is a deposit of a hard black substance which may be iron slag (see technological report, p. 327, frag. E). From the comparatively rare occurrence of glass jewelry it may be assumed that trinkets were not one of the regular products of the factory. Many more, especially bracelets, were found in the factory in Agora Northeast. Such objects seem to have been its specialty, while the factory in Agora South Centre excelled in the making of vessels.

Curiously enough, a very few mosaic cubes (nine in all) were found among the refuse from the factory (fig. 23, no. 81). Three are blue, three emerald-green, one light blue, one yellow-green, and one brick-red. They are all ca. 0.01 m. square. If they were made in the factory, one would expect a great many more of them to have been found.

Following an examination of the remains of the factory and the vessels, there arises the question: how did the factory come to be set up? The answer is implicit in the glass fragments themselves. Although influences from several regions are to be observed, the Egyptian is by far the strongest. This can be seen in many of the vases, and also in small fragments (e.g., nos. 24, 41, 54) which may actually have been imported from Egypt as models. But nos. 51 and 58-61 are the pieces which offer the best evidence for a connection with Egypt. It must first be made clear that these were undoubtedly produced in the Corinth factory; there is no reason to challenge their place of origin. Secondly, numerous pieces have been discovered in Egypt which are so like those from Corinth that it is impossible to doubt that they came from the same place, if not from the same hand. Five such fragments are illustrated by Lamm in his *Mittelalterliche Gläser*,⁵³ one (fig. 24, p. 318) showing a design like that of no. 51, the others having the same technique but a slightly different pattern. All of these are believed to have been found at Fustat, and it is assumed that they were made there. Lamm dates them all ca. 1000 A.D.⁵⁴ One of the fragments,⁵⁵ which is distinguished by having a camel as the central motive of the medallion instead of the more usual bird, also bears the inscription MILOS in Greek letters. Lamm believes, on stylistic grounds, that the piece cannot date before the Islamic conquest (640 A.D.). If, then, this bottle was made in Egypt during the Islamic period, it must have been made by a Greek. Once this fact is established, there remain two possibilities: either the bottles were brought from Egypt to Greece (their transportation in the opposite direction is highly improbable), or Greek glass-makers residing in Egypt transferred their factory to Corinth. Although the coincidence of these identical bottles in Fustat and at Corinth may conceivably have been the result of importation in the ordinary course of trade, or a chance visit to Egypt of Corinthian glass-makers in search of new patterns, this is unlikely in view of the turbulent conditions prevailing in Egypt during the eleventh century. The situation of Egypt

⁵³ Pls. 41: 28; 42: 3; 43: 10-12.

⁵⁴ On p. 106 (*Mitt. Gläser*), he includes them in a larger group which he dates IXth to XIth A.D., but on the basis of comparison with the Corinth pieces, they cannot be much earlier than 1000 A.D.

⁵⁵ Lamm, *Mitt. Gläser*, pl. 43: 10.

tian Greeks in the early years of that century was not a happy one. In 996 Caliph El-Hākim succeeded to the throne. "During the first ten years of the reign the Christians and Jews enjoyed the immunity and even privileges which they had obtained under the tolerant rule of 'Azīz; but as time went on they came in for their share of irrational persecution. . . . Next, a general order was issued for the destruction of all the Christian churches in Egypt, and the confiscation of their lands and property: the work of demolition went on for at least five years (1007-12). The Christians were offered the choice of becoming Muslims, or leaving the country, or else wearing a heavy cross as a badge of their degradation."⁵⁶

What is more likely than that oppressed Greeks should have sought the protection of the Byzantine Empire, and a Christian family in possession of a factory in Fustat have chosen Corinth as a promising place to carry on the manufacture of glass? Here were the materials necessary for the making of glass; here was a flourishing city, newly risen after the barbarian conquests, anxious for trade, excellently situated for export. This hypothetical emigration from Egypt is of course impossible of proof without written documents, and of these there are none. It is offered here as a plausible explanation of the presence of identical vessels in two widely separated factories (the existence of a factory at Fustat in mediaeval times is hardly to be doubted).⁵⁷

A fragment of another bottle of this type comes from Iran, the exact provenience not definitely known (fig. 25, p. 318). It is decorated exactly like the Corinthian bottles, with one exception: the medallions contain human figures. Since it is the only piece of its kind found in Iran, a local origin cannot reasonably be insisted upon. Perhaps it was made in Egypt, as Lamm suggests,⁵⁸ or possibly in the Corinth factory.

The glass-makers who hopefully changed their domicile from Egypt to Greece could hardly have foreseen that their great-grandchildren were to meet a fate similar to theirs. In the year 1147 the Normans, under Roger of Sicily, conquered and systematically pillaged the town of Corinth. It is quite probable, in view of the coins and other evidence found in the débris, that the glass-factory was destroyed at this time. Roger was especially interested in establishing fine industries in Sicily, and is said to have carried off with him most of the Corinthian artisans as well as their products. In the words of the chronicler:

"So he then put the wealth of Corinth and the most distinguished Corinthians on his ships. . . . And one that saw the Sicilian triremes departing thence would not have guessed them to be pirate ships, but would rather have thought them merchantmen of a thousand wares; for they were full of rich and beautiful goods and laden by their burdens down to the top bank of oars."⁵⁹

Whether these glass-makers survived to practise their art in the Kingdom of Sicily is a question to which we do not yet know the answer. At Corinth very little glass later in date than the twelfth century has been found, and it is unlikely that any was ever again manufactured there.

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⁵⁶ Stanley Lane-Poole, *A History of Egypt in the Middle Ages*, London, 1901, pp. 126-127.

⁵⁷ A letter from Prof. Charles H. Morgan II, who is studying the Byzantine pottery from Corinth, tells me that he is not yet prepared to make a definite statement as to the extent of Egyptian influence on eleventh-century Corinthian pottery, but, he adds, "there is some suggestion of Egyptian contacts."

⁵⁸ Lamm, *Glass from Iran*, p. 15.

⁵⁹ John H. Finley, "Corinth in the Middle Ages," *Speculum* vii, 1932, p. 483 (*Nicetae Choniatae Historia*, ii, 1, Ed. Bekker, Bonn, 1835, p. 101).

TECHNOLOGICAL STUDY OF THE GLASS FROM THE CORINTH FACTORY

TWENTY-TWO fragments of glass from the glass-factory in Agora South Centre at Corinth were studied in the following manner. A powdered portion of each sample was subjected to a borax bead test in order to determine which elements, such as iron, copper and manganese, caused the colors. The borax bead reactions indicate the presence or absence of these and other elements, but do not show in what amounts they occur. Each glass was also tested for the presence of lead by etching with hydrofluoric acid and then applying potassium iodide in acetic acid to the hydrofluoric acid washed from the surface of the glass. When lead was present, a yellow to orange precipitate appeared. The index of refraction of each glass was determined by the powder method to an accuracy of ± 0.003 . The values of the refractive index liquids used were checked on an Abbé refractometer.¹

The results of the above tests are summarized in the Table on page 327. The information is qualitative in nature, but where possible a rough indication of the relative amounts of the minerals present in the glasses is shown by the use of double and triple stars.

As will be seen from a study of the Table, most of the glasses contain iron and manganese. When iron occurs in glass that is prepared in a furnace in which an excess of oxygen is present, producing a well oxidized batch, the color is usually yellow as in **P**. When there is insufficient oxygen, the iron will cause green or blue colors to develop. Manganese will produce a violet or amethyst shade when it is present in sufficient amounts, if the glass batch is well oxidized. **Q** and **R** are examples of this type. Published chemical analyses of ancient glasses² show that a small amount of manganese occurs in most of them. Only four glasses contain copper which characteristically produces blue and blue-green colors. There is no evidence that cobalt is the coloring agent in any of the blue glasses. The sealing-wax red fragment, **U**, contains copper, iron and manganese. This agrees with the four analyses of this color of glass published by Neuman.³ The copper is probably in suspension in the glass in a metallic state, thus producing the opaque red color. The opacity of glasses **H**, **O** and **V**, is doubtless due to tin. This was not determined experimentally, but the chemical analyses of Neuman, Lucas and others have shown that tin was the opacifying agent used in antiquity, as well as today. When only a small amount of iron and manganese is present, the glass may be almost colorless, as **S** and **T**. The opaque white fragment, **V**, did not contain a coloring agent in an amount that could be detected with a borax bead.

Lead occurs in the Corinth glasses only in small quantities. Its presence is shown by the potassium iodide test, and some indication of the relative amount in the glass

¹ Professor A. B. Peck of the Department of Mineralogy very kindly allowed me to use the equipment necessary to determine the indices of refraction.

² Bernhard Neuman, "Antike Gläser, ihre Zusammensetzung und Färbung," *Zeitschrift für angewandte Chemie*, 1925, pp. 776, 857; 1927, p. 963; 1928, p. 203; 1929, p. 835; Alfred Lucas, *Ancient Egyptian Materials and Industries*², London, 1934, pp. 418-422.

³ Neuman, *op. cit.*, 1925, p. 858.

is given by the index of refraction. The addition of lead makes glass appear more brilliant and gem-like and raises the index of refraction. Some of the Corinth glasses are of moderate brilliance, but the low indices show that only a little lead was used.

The refractive indices fall within the range of values possible for soda-lime glasses. The presence of lead, iron, manganese, copper, etc., in a glass will tend to increase the refractive index. An examination of the Table will show that most of the glasses from which lead is absent have an index value near 1.52 unless there is a large amount of iron or manganese present as in **P**, or unless copper is the coloring agent. The glasses containing lead have an index of about 1.53, which suggests that only a small amount of lead is present. The only other data available on the index of refraction of ancient glasses are those for six Egyptian beads from Dynasties VI, XII and XVIII, and one from Arab times.⁴ They had indices ranging from 1.515 to 1.55 and were apparently soda-lime glasses. The paucity of the Egyptian material published makes it unsatisfactory for comparative purposes.

Although no chemical analyses were made, it seems quite probable that the major constituents of the glasses are soda, lime, and silica. As is shown by Neuman's and Lucas' analyses, all ancient glasses (other than Chinese, which contain a large amount of lead⁵) are of the soda-lime type, but within this general group there are differences. The ninth-century Mesopotamian glass from Samarra, according to Neuman,⁶ had a smaller alkali content than the Roman and Egyptian glasses and contained larger amounts of lime, magnesia and alumina than the older types with the result that they were technically better products than the glasses of the earlier periods. This is shown by the fact that there is much less surface decay of the Samarra glass than of the Egyptian and Roman. The absence of the iridescent flaky surface on all of the Corinth pieces examined except **S** would suggest that in Greece, too, the glass-makers had learned by the eleventh century to proportion their materials better, so as to produce more durable wares.

The softening points of the glasses upon refiring fall within narrow limits, 750°–780° C. The olive-yellow glass **P** is the first to soften, and the iron-blue glass **K** is the last. These values are within the range of those determined by Neuman.⁷ He found that of the glasses he tested, the Egyptian, with one exception, and the Roman and Cologne glasses, melted between 670° and 805° C., with an average value for the series of almost 760° C. The Islamic glasses from Samarra had a higher softening point which averaged 803° C.

Sample **M** has a design painted on the surface in red and yellow. Upon refiring a fragment of this glass the red and yellow areas blistered and became vitrified at a temperature below that at which the glass softens. This would suggest that the design had been applied to the vessel after the glass had been fired. Then, to make the design permanent, a second firing took place at a temperature lower than the first one. The red areas of the design are probably produced through the use of ferric iron, which is red in color. It is possible that the yellow is due to a compound

⁴ Robert Mond and Oliver H. Myers, *Cemeteries of Arman i*, London, 1937, p. 73.

⁵ C. G. Seligman and H. C. Beck, "Far Eastern Glass: some Western Origins," *Bulletin* No. 10, 1938, pp. 1–64, The Museum of Far Eastern Antiquities, Stockholm.

⁶ Neuman, *op. cit.*, 1927, p. 965.

⁷ *Ibid.*, p. 966.

of antimony and lead, such as Lucas says was used by the Egyptians, Persians, and Arabs.⁸ As the design areas are opaque even when refired until they blister, it is probable that some opacifier was used in the paint formula. This may have been clay, which would give body to the unfired paints and make them adhere more readily to the surface of the glass.

On fragment E there is a dark gray to black material. When some of it is separated from the glass, it can be picked up with a magnet, which indicates that there is an iron compound present. It is probable that the black material is slag from the glass pots. In such slag one might expect to find iron.

This brief study of twenty-two typical samples of eleventh- to twelfth-century glass types produced in the Agora South Central glass-factory at Corinth would indicate that there had been no major change in the manner of producing the various colors in the Mediterranean world for over a thousand years. The Corinth glass, on the basis of softening temperatures, would seem to be nearer to the Egyptian and Roman wares than to the Islamic, but as has already been mentioned, the lack of surface decay would suggest that there had been some improvement in composition since Roman times.

TABLE
PROPERTIES OF GLASS FROM CORINTH

Frag.	Color	Index of Refraction	Lead	Iron	Manganese	Copper	Tin	Softening Point ° C.
A	Light green	1.525		*	*			760
B	Green	1.529	*	*	*			770
C	Dark green	1.533	*	*	*			
D	Olive-green	1.527	*	*	*			760
E	Olive green (no. 80)	1.527	*	*	*			
F	Pale blue-green (nos. 6-8)	1.529		*	**			760
G	Blue-green	1.531				*		760
H	Opaque pale green	1.542	*	*	*		*?	760
I	Light blue (no. 50)	1.522		*				770
J	Pale blue	1.522		*				770
K	Blue (nos. 25-27)	1.533	*	*	*			780
L	Deep blue	1.531				*		770
M	Deep blue (no. 51)	1.531	*	*	*			760
N	Turquoise blue	1.513		*				760
O	Opaque turquoise blue	1.536	*			*	*?	
P	Olive-yellow	1.534		*	**			750
Q	Deep violet	1.520	*	*	***			770
R	Pale violet	1.529	*	*	**			760
S	Colorless (no. 1)	1.522		*	*			760
T	Colorless	1.527		*	*			
U	Opaque sealing-wax red	1.545		*	*	*		760
V	Opaque white	1.534					*?	

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⁸ Lucas, *op. cit.*, p. 125.

PRELIMINARY REPORT ON THE SECOND CAMPAIGN OF EXCAVATION IN SAMOTHRACE

THE second campaign of excavations in Samothrace, carried out by the Archaeological Research Fund of New York University under the auspices of the American School of Classical Studies in Athens, lasted nine weeks, from June to August 1939. On the basis of the preliminary work of the previous campaign,¹ a gradual and methodical excavation and systematization of the sanctuary of the Great Gods was begun. The major results of this campaign follow.²

We concentrated excavation on the northern section of the sanctuary (fig. 1), i.e., the region to the south of the point where its two rivers meet. There, in 1938, we had discovered and unearthed the northern part of an ancient building, identifiable as the Anaktoron, where initiation into the mysteries took place.³ The major objectives of the campaign of 1939 were the complete excavation of this building and the exploration of the region to the south, including a new and thorough excavation of the famous circular building dedicated by Queen Arsinoë. In spite of technical difficulties and of unusually unfavorable climatic conditions, this task was to a large extent accomplished (figs. 2, 3).

¹ *AJA.* xliii, 1939, pp. 133 ff.

² We should like to acknowledge again our gratitude to a great number of individuals and institutions who have kindly coöperated with us. The Royal Greek Ministry of Education obliged us by favoring our work in all respects, and we are especially indebted to Dr. Sp. Marinatos for his unfailing interest as Director of the Archaeological Section. The officers of the American School gave efficient advice and help whenever it was needed. The executives of the American Express Company, particularly Mr. Lynde Seldon in New York, and Mr. H. A. Hill and Mr. Gordon in Athens, have been extremely helpful in technical matters. Professors T. Leslie Shear and B. D. Meritt greatly assisted us in securing able workmen and necessary material. Most of all, I should like to acknowledge the great service done to archaeology by the enthusiastic donors of our fund, who have contributed unusually large sums of money needed for the varied tasks connected with the beginning of methodical work, enabling us to purchase and construct a decaville railroad, thus paving the way for the solution of a basic technical problem, since topographical conditions necessitate the transportation of the earth and débris to points 300 to 500 m. distant from the sanctuary. A second major task connected with the work and financed by the same donors is the construction of a local museum—a task especially urgent in view of the increasing number of our finds. We began the new museum by constructing one hall which will be finished next season, and to which we hope to add other parts later. The building is being erected on public ground to the west of the road from Chora to Palaeopolis, a short distance northwest from the sanctuary and west of the ancient town. After the termination of the American excavations it will be given to the Greek Government.

The staff under my direction was again composed of Mr. and Mrs. Edward L. Holsten and Miss Phyllis Williams and, in addition, Mr. Stuart Shaw, who joined the group as archaeological architect, drew the plans and sections, but shared in all of our activities. Mr. B. Kallipolitis, who stayed with us throughout the campaign as the representative of the Greek Government, was very helpful and coöperative. Our excellent foreman, Georgios Nikolaides, again proved to be of very unusual ability in organizing the work of excavation as well as the various building activities. Thanks to the generosity of the Greek Government and of Mr. Kourouniotis, the able restorer of the National Museum in Athens, Basileos Giannikos, was at our disposal throughout the campaign. Dr. H. Bloch has been extremely helpful in checking and improving my readings of inscriptions and particularly in the restorations of the Latin texts. I wish to acknowledge gratefully the coöperation of all members of the staff. This report is the result of work by the group, although my signature indicates my personal responsibility.

³ *AJA.* xliii, 1939, pp. 135 ff., figs. 2 ff.



FIG. 1.—MAP OF THE SANCTUARY AT THE END OF THE CAMPAIGN OF 1939



FIG. 2.—VIEW OF THE NORTHERN AREA OF THE SANCTUARY FROM THE WEST, DURING THE CAMPAIGN OF 1939



FIG. 5.—ANAKTORON, INTERIOR, MAIN HALL AND SOUTHERN PART SEEN FROM THE NORTH



FIG. 6.—ANAKTORON, SEEN FROM THE SOUTHEAST. IN THE LEFT FOREGROUND, THE SACRISTY

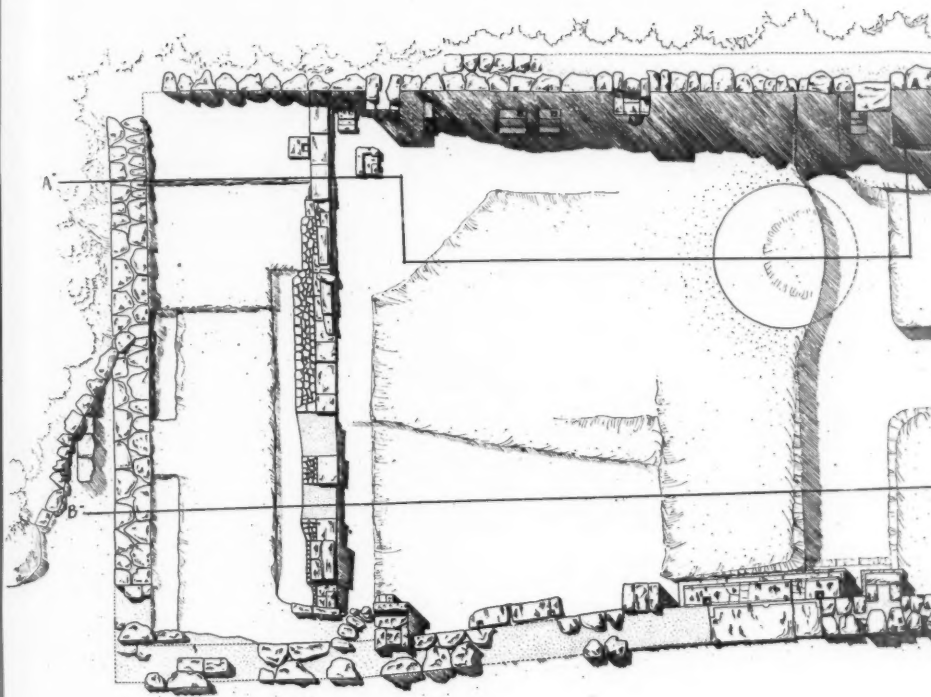
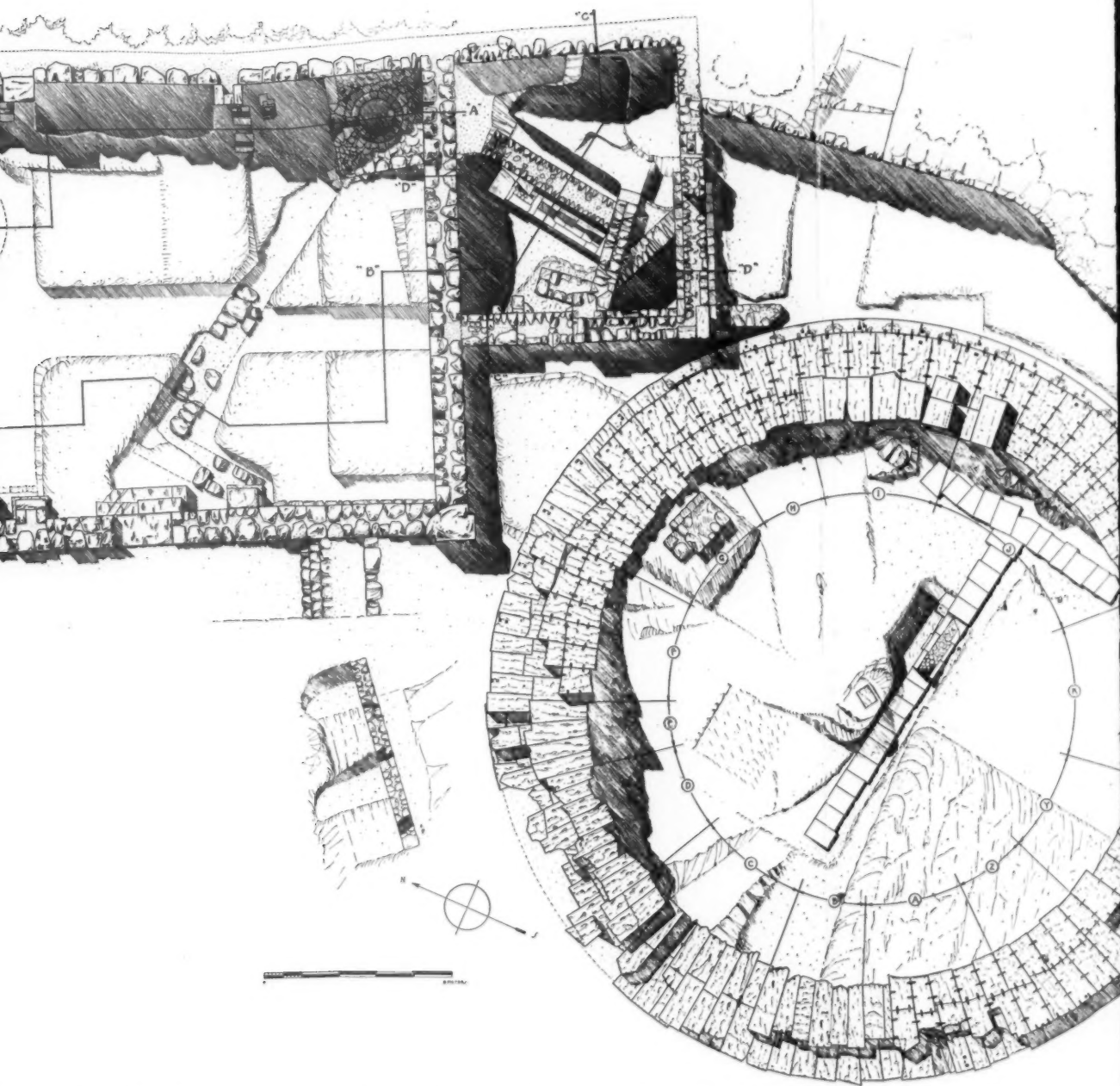
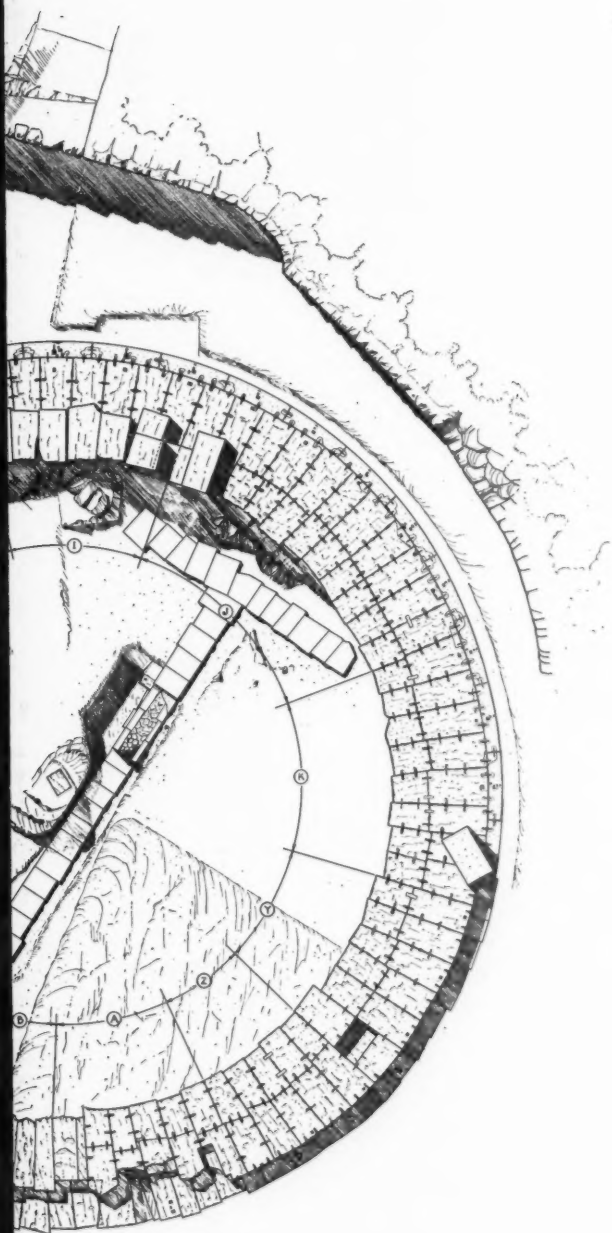


FIG. 3.—PLAN OF THE EXCAVATION



THE EXCAVATION IN THE NORTHERN AREA OF THE SANCTUARY AT THE END OF THE CAMPAIGN OF 1939



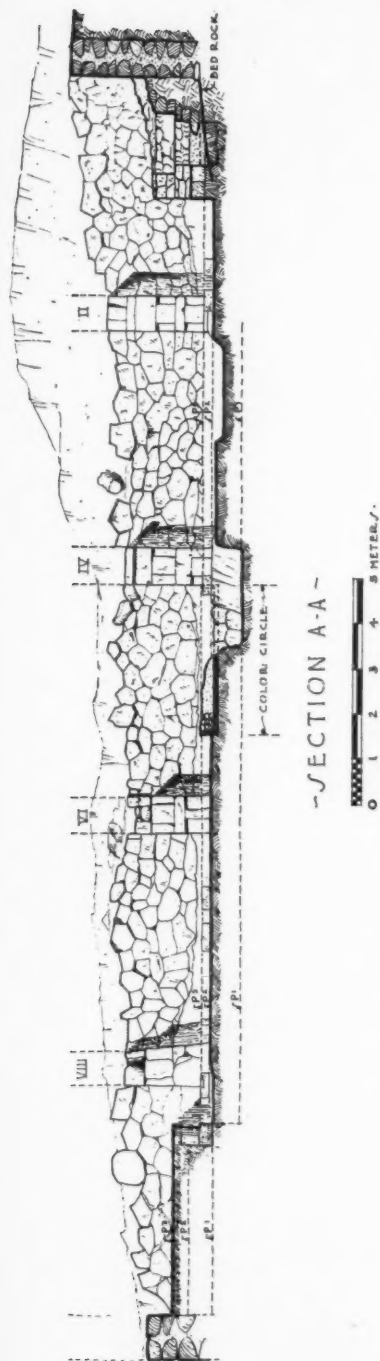


FIG. 4. — NORTH-SOUTH SECTION THROUGH THE ANAKTORON, VIEW FROM THE WEST

At the beginning of our work, the area between the formerly excavated northern part of the Anaktoron and the Arsinoeion, a surface of about 300 square meters, was covered with *débris*. This consisted chiefly of large building blocks from the Arsinoeion and fallen stones from the upper structure of the Anaktoron. Its removal was followed by a complete excavation of the interior of the Anaktoron. The outlines of this venerable archaic Greek building gradually emerged, together with its surprisingly well preserved interior installation, the preservation of which was very unexpected (figs. 3, 4-6), since nothing was visible in this area before excavation. At some points in the southern part, the ancient polygonal walls stand upright to a height of twelve feet. The size of the building, too, is much larger than we expected. It has a length of 28.72 m. and an average width of 13.30 m. At its southwestern corner, it is only 1.25 m. distant from the Arsinoeion.

It is a rectangle approximately half as wide as it is long, and its axis follows the direction of the ridge upon the western slope of which it is built. Throughout most of its length, the western wall bends inward slightly because of the irregularity of the ground. The walls (86 cm. thick) are best preserved in the south and on the eastern side, being largely destroyed in the north and west, in some points down to the latest of the ancient floor levels. Four pairs of broad rectangular pillars project from the long walls, dividing the interior into five bays (figs. 3-5, 7). It is now clear that these piers were the only supports of the ceiling; apparently they carried pairs of heavy transverse beams which, in turn, supported the upper roof construction. With a span of 11.60 m., this roof is a remarkable construction for such an early period. On the western side, three doors give access to the three central bays of the interior: the large door in the center is flanked by two

smaller doors at its sides (figs. 3, 6, 8). The date of this structure already given in our first report as about 500 B.C.⁴ was confirmed by the ceramic finds made this year. Furthermore, fragments of antefixes of this period have been found. In all of its periods, from the beginning to the end, the building had only stamped earth floors which indicate by their levels an interior plan characterized by division into a central lower area and two higher parts in the southern and northern bays respectively. The central part, extending from the southern part of the northern bay to the northern end of the southern bay, was originally⁵ at a level 85 cm. below the Hellenistic-Roman floor (level with the bedrock on the eastern side), and stairs must have descended to it from the doors. Originally used in a forerunner of the present Anaktoron, this floor level was reused in the first period.⁶

The central area was framed by platforms to the north and south, the former having a height of 57 cm., the latter of 85 cm. A foundation projecting from the original south wall at this level, and a prehistoric foundation preserved nearly to the same level in the section between the two southern pillars, indicate the existence and size of the southern platform. To judge by the later installation, it seems probable that the northern part was separated from the main hall by a wooden partition or curtains, and that the southern platform was used for accommodating the community. Although this plan, with its entrances on the long side, and with a raised sanctuary at one end balanced by an opposing platform at the other, might naturally suggest connections with Near Eastern religious architecture,⁷ we hesitate to hazard such a connection at this time. The use of a long side of the Anaktoron for the entrance wall may simply be due to the terrain, while the interior disposition, which certainly was determined by considerations of ritual, in itself may be the result of traditions quite different from those of any oriental religion.

The building was restored, probably in the fifth century B.C.,⁸ according to ceramic finds. In the main hall, the floor⁹ was raised 67 cm. and the level of the northern section was raised too (51 cm.), and thus continued to be higher than the main hall. The southern platform remained unchanged. A red limestone threshold from this period which preserves its bronze doorpans is still visible in the main door (fig. 8), while another seems to have been reused in the southern door. The outer thresholds of white limestone (that of the main door, fig. 8, having a length of 2.59 m.) were later reused from this period. A second antefix type (fig. 9) belongs to this restoration. The stucco coating from this period is preserved in various places in the interior. After a disaster, at the beginning of the Hellenistic age,¹⁰ more thorough transformations were made. At this time not only was the northern section raised again and separated from the central section by a wall (as had already been discovered in 1938),¹¹ but the floor of the main hall was raised to its present level.¹² Apparently large sections of the walls in the southwest had collapsed. The present southwestern corner, including a strong corner buttress (originally not visible) as well as the whole west wall up to the main door were restored, and their foundations

⁴ *A.J.A.* xliii, 1939, p. 135.

⁵ P. 1, in the section, fig. 4.

⁶ *Op. cit.*, p. 135.

⁷ For the types, which could be compared, see the recent discussion by Bernheimer, *A.J.A.* xliii, 1939, pp. 647 ff.

⁸ Cf. *A.J.A.* xliii, 1939, p. 135.

⁹ P. 2, in the section, fig. 4.

¹⁰ See *A.J.A.* xliii, 1939, pp. 135 ff.

¹¹ *Ibid.*, fig. 5, visible here in the upper right corner of fig. 6.

¹² P. 3, in the section, fig. 4.



FIG. 7.—ANAKTORON, SOUTHERN PIER OF EAST WALL AND BASES OF WOODEN GRANDSTAND



FIG. 8.—ANAKTORON, MAIN DOOR, SEEN FROM THE SOUTHEAST



FIG. 9.—ANAKTORON, CLAY ANTEFIX FROM THE FIFTH-CENTURY RESTORATION



FIG. 11.—ANAKTORON, VIEW OF "THYMELE" FROM ENTRANCE



FIG. 10.—ANAKTORON, CLAY ANTEFIX FROM EARLY HELLENISTIC RESTORATION

accounted for the new floor level. A third antefix type, preserved in numerous fragments (fig. 10), belongs to this restoration. In the southern section, the raised platform of the previous period was now supplanted by an inclined earth floor. Starting from the floor level of the main hall, at about 3.50 m. distance from the south wall, this inclined floor reached a height of +40 cm. at its highest point.¹³ This platform can have had no other purpose than to support places for spectators facing the center. As we mentioned in the first report, base stones for a wooden construction are preserved along the northern and eastern walls of the main hall.¹⁴ Additional bases of the same type were discovered this year at the northern end of the southern bay, and in front of the second pillar from the south (figs. 3, 7). The wooden structures which they supported seem to have been a kind of grand stand, 80 cm. in depth, rather than benches. This grand stand, interrupted by the stairs leading up to the northern sanctuary, extends along the northern and eastern sides of the main hall. In the southeastern corner of the building, between the south end of this grand stand and the inclined earth floor, we discovered a very strange structure.¹⁵ After the walls had been recoated with white stucco, but probably not much later, it had been erected on the Hellenistic floor level. For convenience, we may call this structure a *θυμέλη* because sacrifices of some kind were performed here. At the outside it is roughly eight feet square. In the center of the northern side an opening leads to a circular interior, having a diameter of 1.10 m. in the lower part and a recess of 0.15 m. width at a height of 35 cm. above the threshold. This, in turn, emerges 30 cm. above the outer floor (figs. 3, 4, 11). The original height of the walls remains uncertain. The opening in the front is too narrow for an entrance, although at this point the threshold was certainly used for an approach. At the threshold level the stone structure of the interior is placed on earth. Twenty centimeters deeper, a white clay layer formed the floor of what was an open *bothros*, as the fallen *débris* showed. In its background, as in the *bothroi* of the Old and New Temples excavated by the Austrians,¹⁶ a big "sacred" stone appeared. As a matter of fact, it is a reused polygonal building stone of rock. The upper recess in the wall probably served to support a lid over this *bothros*, since traces of such a lid were visible in the *bothros* of the Old Temple.¹⁷ In the present case, the walls of the structure emerged above this lid to an unknown height and concealed something which was kept on the lid, and could be worshipped there or either taken away from or deposited on it. A liquid, possibly blood, could easily be poured into the lower section through the opening of the entrance. A few small fragments of animal bones found in the interior, together with the *débris* which had fallen in the later destruction, can hardly be used as evidence of other sacrifices. However, the clay floor used for the *bothros* of the Hellenistic-Roman period is of earlier origin, belonging either to the second or to the first period of the building. It extends slightly toward the north, and 1.25 m. to the west of the present structure, beneath the Hellenistic earth

¹³ Visible in the background of fig. 5.

¹⁴ *AJA.* xliii, 1939, p. 138, figs. 4, 5.

¹⁵ Visible in fig. 5, left, background.

¹⁶ *Untersuchungen auf Samothrake* i, pp. 20 ff, 60, pls. XI, XIV, XVII, XIX-XXI; ii, pp. 21 ff., pls. IV-VII. These stones have not been discussed by the excavators and the one which was discovered in the Old Temple has not been recorded. However, it is visible in the photograph, ii, pl. V.

¹⁷ *Ibid.*, ii, pp. 21 ff. pls. IV-VII.

floor. Beneath the west wall of the Hellenistic structure and at its level, a crushed channel built of tiles points to an earlier division into two sections. And behind the western section, a hole in the south wall, 26 cm. above the clay floor, and closed with tiles and stucco in the Hellenistic restoration, may possibly be a trace of a channel leading into this earlier bothros from the higher level outside to the south. In any case, the later structure in the southeast corner of the Anaktoron points to a sacrificial rite performed here in connection with the initiation. As far as the individual mystes was concerned, this might well have been the initial rite, because we discovered near the center of the building an amazingly well preserved document of the later stages of these rites.

When we approached the Hellenistic floor level at this point, our attention was

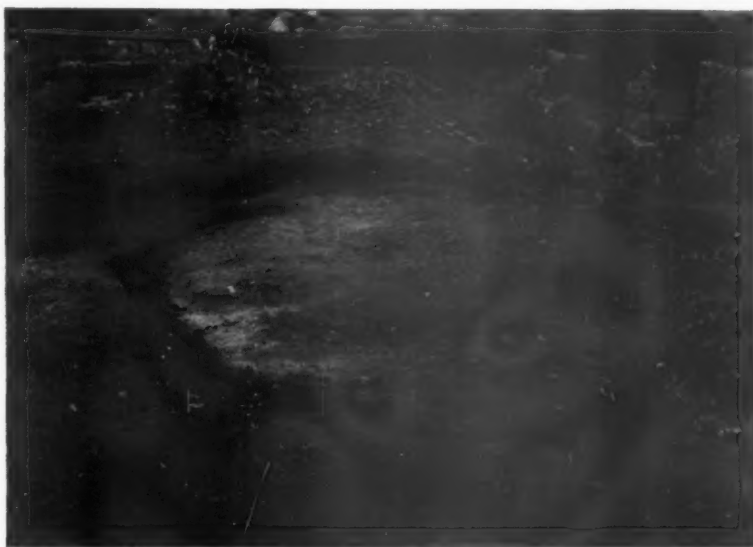


FIG. 12.—ANAKTORON, WOODEN CIRCULAR PLATFORM IN CENTRAL PART

attracted by an area of intensely burned débris from the final destruction. When this center of fire had been carefully cleaned of fallen material, it appeared as a well defined, exactly circular structure and its wooden, carbonized frame was clearly visible (fig. 12). Originally it emerged slightly above the ground. As the section revealed, the round wooden frame of this circle of 3.25 m. diameter went down to a depth of -31 cm., where it apparently was anchored in a heavy wooden horizontal floor of 10 cm. thickness (fig. 6, center right). The circular frame was strengthened on the inside by a small outer ring of hard field stones and inner limestone blocks on this floor. Apparently this stone frame supported an upper floor. In the final fire, the field stones burned and were largely pulverized to a red dust, while the limestone turned to white chalky powder with which the interior was partly filled at the moment of excavation. We learn from Lucius' account of his initiation into the Egyptian mysteries,¹⁸ what this circular wooden platform originally was: at the end

¹⁸ Apuleius, *Met.* xi, ch. 24.

of the ceremony, the new mystes was led to a wooden platform in the center of the initiation hall from which he was presented to the community: ". . . in ipso aedis sacrae meditullio ante deae simulacrum constitutum tribunal ligneum iussus superstiti." This striking analogy at once reveals the meaning of the circular wooden platform which is nearly in the center of the building, where it is exposed to the view of the spectators at the south as well as to those in the grand stand to the east and north. In Samothrace, where in this very period Ptolemaic kings and queens began to become active patrons and builders, this structure (which may be dated in the very beginning of the Hellenistic period) also reveals one of the sources of the rites of the Hellenistic mystery cult of the Egyptian gods, which gradually developed in the third century B.C.¹⁹ If we are right, the circular "tribunal," where the mystes was presented to the community at the end of his initiation, and which is east of the main axis of the building, is interrelated with and explains the off-center position of the two entrance doors of the northern sanctuary. It leaves room for a broad avenue leading to these doors. The northern sanctuary, the doors of which were guarded by bronze statues of two young men,²⁰ was accessible only to the mystae after the initiation. This we know from the stele discovered in 1938, which first revealed the use of the building.²¹ Thus the remarkably well preserved interior installation of the Hellenistic period begins to disclose essential features of the rites performed in this most mysterious of mystery cults.

The building persisted in this form for more than six hundred years after the Hellenistic restoration, until the end of the cult in the fourth century A.D. No major changes were made. Naturally, however, repairs were necessary. We observed partial repairs in various places in the earth floor of the Hellenistic level, which contained Roman fragments of pottery and glass, dating from Early Imperial times to 200 A.D. The stele bearing the cult regulation was erected about 200 A.D. Various spoils were included in repairs of the upper part of the bothros structure (fig. 11). In connection with a change of level on the exterior, the southern door was remodeled by means of a stairway partially made of the old thresholds and of red limestone spoils (fig. 6, left). And the reuse in the northern door of the original thresholds of the doors of the northern sanctuary²² may now be ascribed to this late restoration too, instead of to a post-classical period. We have indications, however, that the Anaktoron, like the Arsinoeion, stood upright for a considerable time after the decay of the cult, and that both buildings collapsed in a tremendous earthquake centuries later. The débris in the southern half of the Anaktoron, showing a mixture of the blocks of its own upper structure with fallen blocks from the Arsinoeion, can only be explained this way. Before this destruction, the building was used for other purposes. In its center, we found a sad illustration of this period of decay—an accumulation of wilfully destroyed pieces of marble, including architectural and sculptural fragments, often smashed to unrecognizable pieces, and stored here for some use which the final destruction prevented.

In connection with the systematic excavation of the Samothracian sanctuary, a new and thorough investigation of the Arsinoeion was necessary. This building oc-

¹⁹ See Brady, "The reception of the Egyptian Gods by the Greeks," *Univ. of Michigan Studies*, 1935, pp. 9 ff.

²⁰ *AJA.* xliii, 1939, p. 138.

²¹ *Ibid.*, fig. 6.

²² *Ibid.*

cupies a place of particular importance among Greek round buildings because of its unusual construction and its well documented date in the second decade of the third century B.C.²³ As a matter of fact, the old Austrian excavation,²⁴ following upon a partial study of the ruin by a French expedition, was by no means a real excavation. We have ample evidence for the fact that the excavators limited their work to partial searches which aimed to establish the basic facts of the structure. For this purpose, they excavated the periphery, cleaned a section of the foundation at the west, removed a number of blocks from their fallen positions, turned others around in their places and, finally made a trench leading from the west side into the interior. In a way we may admire how positive the results of this investigation were: undoubtedly, for its period, the seventies of the nineteenth century, it was one of the most thorough studies of an ancient building. And we have confirmed the main dimensions as well as striking features of their reconstruction. Nevertheless, the complete and systematic excavation of the building, as well as the methodical study of all its blocks, which was begun by Mr. Shaw, will largely rectify details. Already it has added considerably to our knowledge of the building, chiefly in regard to its interior installation and its resulting use and history. At the beginning of our work, the area was covered by an accumulation of *débris* from the upper structure. Only portions of the foundations were here and there visible. The former excavators had traced their outlines and some major features. A mound of *débris* emerged in the center about six feet from the euthynteria level and covered the interior. Other *débris* was strewn around all sides of the building, while at the northwest some of the large building blocks had fallen down into the river valley. The natural conditions of the site precluded the possibility of removing this enormous mass of building blocks (almost half of the large architectural parts of the original structure seems to be preserved) to a convenient site in the neighborhood. On the other hand, the transportation of the stones to a distant place, outside the zone of present and future excavation, would have been a Utopian enterprise, in addition to involving a tremendous risk in handling the delicate Thasian marble used in the building. Therefore, we decided to set up a good number of the building stones on a terrace which we began to construct to the west of the southern part of the Anaktoron (fig. 2, left foreground), and which will be extended further southward, along the west side of the Arsinoeion, after future excavation of that region. The rest of the stones could only be put on the foundation of the building itself (figs. 2, 13). This necessitated a gradual cleaning and study of individual sections of the foundation, followed by the transportation of the stones from the nearest uncleared section and from adjoining parts of the interior to the explored cleared sector. At the same time a record was taken of the position in which each stone was found and the stones were numbered. At the end of the campaign, the entire foundation had been explored by Mr. Shaw, and a comparison of his new and exact plan (fig. 3) with the schematic plan in the Austrian publication reveals the successful accomplishment of this work. In this way the *débris* covering both the building itself and the areas to the north and east of it was systematized, and we hope that in the next campaign it will be possible

²³ *IG*, xii, pt. 8, n. 227.

²⁴ *Untersuchungen auf Samothrake* i, pls. LIII-LXVII, pp. 79 ff.; ii, pp. 111 ff.

to finish this technical work which will allow a comprehensive and conclusive study of the building. Nevertheless, we are already able to give information which adds considerably to the knowledge of this important structure.

The enormous foundation is surprisingly irregular, although it was constructed in homogeneous material of grey porous limestone, with the exception of a few recut blocks from earlier buildings. The blocks, however, were not cut to a standard cuneiform shape, but adjusted individually to their positions, as the work progressed. It is too early to make any statement about the reconstruction of the exterior, but we have obtained interesting new evidence for the roof. Originally a marble roof was intended, but the roof was actually made of scale-shaped tiles, which invariably show the same form, of an upper polygonal part, the raised edges of which sustained

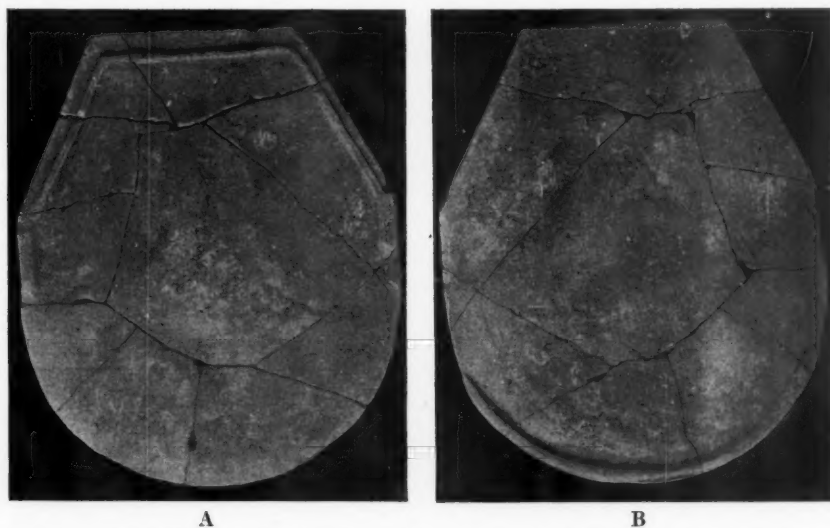


FIG. 14.—ROOF TILE OF THE ARSINOEION. H. 66.1 CM. A. UPPER FACE; B. LOWER FACE

the ends of the tiles of the next row, and an exposed lower round part which also has a raised edge on its lower face. We have found great quantities of fragments of these tiles,²⁵ and one complete tile reused in a pit (fig. 14). The fragments show progressively decreasing size toward the upper part of the roof. Some of them preserve stamped letters, either marks of the workshop or, more probably, indications of the order of the series. This roof, which resembles the marble imitation preserved on the monument of Lysikrates, was crowned by a marble finial ending in a narrow chimney, parts of which had been discovered previously.²⁶ A new fragment shows that at the transition to the tile roof, the finial ended in a concave curve. It is possible that the whole roof curved upward.

Still more important are the statements made in regard to the interior of this building in which the upper part of the walls seems to have been of stuccoed lime-

²⁵ The first fragment was discovered in 1938 in the Anaktoron and at that time erroneously ascribed to a hipped roof of this building (*AJA.* xliii, 1939, p. 135).

²⁶ *Untersuchungen auf Samothrake* i, pp. 84, pl. LIX.

stone. After removing the fallen débris, we uncovered an ancient fill, extending over most of the building (fig. 13). Its surface is 80 cm. above the euthynteria level. It is clear that the ancient floor of the interior was either at this level or at one slightly higher, i.e., three steps above the euthynteria. Two of these steps were on the outside, a third must have been at the entrance. At many points of the periphery the ancient fill was disturbed in the western part by an Austrian trial ditch, by means of which the excavators, not recognizing the nature of the fill, vainly tried to find the ancient floor at a lower level. Three pits, a rounded one to the southwest, one of irregular shape to the northeast, and a square one to the southeast of the center—all of them for the preparation of stucco—were dug into the fill in ancient times, as traces indicate. The square pit had a floor made of roof tiles from the building, including the one entirely preserved specimen (fig. 14). This is evidence of an antique restoration after considerable damage. To the east of the center of the building, the fill was interrupted by a round area having a surface diameter of about 10 feet and an eastern extension. A funnel-shaped pit descended here (fig. 13) and was filled with burned débris, lime and stones. Its upper edge showed traces of a rough stone structure. This post-antique pit gives evidence of a limekiln erected in the interior of the structure before its final collapse. Exactly in the center of the building, 1.50 m. below the ancient floor, a limestone block was discovered *in situ* (fig. 15, left foreground). Since the fill immediately to the west of it was preserved undisturbed up to the ancient floor level, although this was not the case at its other side because of the late pit, it is not impossible that this stone is the lowest block of a foundation supporting a small and, given its deep position, very heavy object in the center of the building, beneath the open chimney of the roof.²⁷ But more probably, in the process of construction this stone was used for centering the building and afterward left in place beneath the fill.

A structure of importance (fig. 16, left background) was found in the northern area close to the foundation and is indicated in the plan (fig. 3). It consists of two superimposed foundations (1.60 m. x 0.60 m., and 1.25 m. x 1.08 m. respectively), which again indicate a later restoration. Its change of form, the earlier being rectangular, the latter almost square, would indicate that these foundations had been used for altars rather than for images, since the shape of an altar could be changed. Immediately behind it we found a fragment of an archaistic relief of dancing women, from a rounded monument, the size of which is quite compatible with the hypothesis that it belongs to a round altar supported by a square foundation. The position of these foundations, opposite the entrance, would point to the location of a door on the southern, rather than on the western side, as the Austrians thought, and this is in harmony with the fact that the only fragment of the dedicatory inscription still preserved (*IG* xii, 8, no. 227) was found in section K of our plan. In addition to this altar in the background (which might justify for the Arsinoeion the name Thymele, a term used in the building inscriptions of the Tholos in Epidauros), a marked projection of the foundation along the whole inner periphery may indicate a structure to accommodate spectators. The character of the

²⁷ Our first explanation, that we might have here another sacred stone at the bottom of a deep bothros, is eliminated by the nature of the fill preserved immediately to the west of the stone.



FIG. 13. — ARSINOEION, SEEN FROM THE NORTHEAST, AFTER CLEANING AND SYSTEMATIZATION



FIG. 15. — ARSINOEION, INTERIOR SEEN FROM THE WEST DURING EXCAVATION



FIG. 16. — ARSINOEION, INTERIOR, NORTHEAST PART, DURING EXCAVATION

floor itself could not be ascertained. Marble fragments of pavements found in the area cannot be ascribed to the building with any certainty, and the upper surface of the interior was too much destroyed by débris and former digs to allow any conclusion in this respect.

The undisturbed fill beneath the ancient floor level, although it is not homogeneous in character and reflects the gradual process of the erection of the immense foundation, generally shows homogeneity in its cultural remains. In view of the certain

date of the building, it is very important for the chronology and for comparative use. With the exception of one sector in the southwest part, which we reserved for future

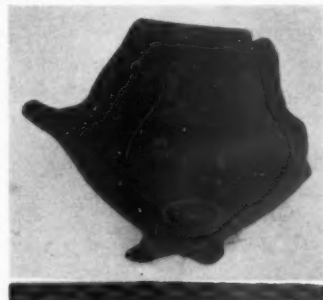


FIG. 17.—FRAGMENTARY KANTHAROS WITH INCISED ○ FROM THE FILL OF THE ARSINOEION



FIG. 19.—RESTORED MARBLE LAMP, FROM THE FILL OF THE ARSINOEION



FIG. 18.—LEG OF ARCHAIC MARBLE STATUE, FROM A LIFE-SIZED STATUE

investigation (fig. 15, right), this fill was dug away during the campaign to an average depth of 1.50–2 m. in the various sections. It contained many fragments of ceramics and occasionally in limited areas, nearly complete fragments of single vases, mostly of kantharoi and small bowls, as well as a considerable number of fragmentary lamps. Many of the ceramic fragments are inscribed (fig. 17). The ceramics date from the late archaic period to the time of the construction of the Arsinoeion and show a numerical increase of pieces of fourth-century character. Among the unusual finds were a fine leg of an archaic male statue of island marble (fig. 18), curiously buried in the fill in an exactly upright position, and a marble double-spouted lamp (fig. 19) of unusual size (25.5 cm. long). In one place we found an accumulation of strange coarse clay objects (ht. 5–7 cm.), of a type resembling

the prehistoric "Pintadere" of Italy²⁸ or the "brush handles" of Anatolia, with roughly scratched irregular line patterns on their lower convex faces. We have no explanation of their use to offer as yet.

As the pits in the interior and the renewal of the altar substructure have indicated already, a major disaster necessitated a restoration of the building in a still unknown period. The same fact is indicated by the renewal of upper parts of the outer foundation, in a period in which lead channels (absent in the original structure) were used. Similar instances and other traces of repair occur in blocks of the upper structure too. The date of this restoration, and possibly of various restorations, in antiquity, cannot yet be determined. Possibly the sack of the sanctuary by the pirates caused the destruction.²⁹ The building must have been upright for a considerable period after the termination of the cult. In fact, traces of some use in the following dark age have been mentioned. These traces include a Byzantine potsherd. At length the building collapsed in a tremendous catastrophe, at the same time as the Anaktoron.

Before we describe our discoveries of earlier remains in this area, it seems advisable to outline those made to the east and northeast of the building, in order to avoid repetition. Part of a terrace wall supporting the higher levels to the east of the Arsinoeion had always been visible at a distance of 1.50 m. from our section J. We have cleared its lower part and excavated the whole area to the north, uncovering its continuation to a total length of 16.10 m. (fig. 3). The northern part, which was not visible before, recedes in a curve toward the northeast, and is preserved to an average height of about 6 feet. The terrace wall as a whole, however, is not at all homogeneous. It shows clearly three building periods. The southernmost part (fig. 20, right), using big polygonal stones carefully constructed with mortar, belongs to the earliest period, which is probably contemporary with the Arsinoeion. Then follows a section in which the upper structure is partially placed upon irregularly broken fragments of this earlier terrace wall (figs. 20, left, and 21, right). It is obvious that this section, which follows the original line, is connected with a major restoration of the Arsinoeion, because of the reuse of a file of stones from the upper edge of the Arsinoeion foundation. The northernmost section (fig. 21, left), built very sloppily with scant mortar, and including numerous fragments of earlier monuments, curves backward. Its date in the early fourth century A.D. can be ascertained indirectly, because of its connection with the "Sacristy." This is the name which we have given to a building excavated between the eastern part of the south wall of the Anaktoron and the Arsinoeion (fig. 3). Small as its dimensions are, it is of extreme importance both for the history of the cult and for the discovery in its area of at least four successive pre-Hellenistic buildings (fig. 22).

The structure, of which only a corner-stone close to the euthynteria of the Arsinoeion was visible after the area had been cleaned of vegetation and debris, is roughly 7 m. square. Its original walls, of polygonal limestone blocks with ashlar work at the corner, are preserved only in the southern part to a height of 80 cm. (fig. 23), but its foundation is preserved in the northern part of the western wall, where it is placed against the south wall of the Anaktoron, the upper part of which was used as the

²⁸ Ebert, *REV.* 10, p. 161; 13, p. 188; H. Goldman, *AJA.* xliv, 1940, p. 67.

²⁹ Appian, *Mithr.* 63; Plut., *Pomp.* 24.



FIG. 21.—CENTRAL PART OF THE TERRACE WALL, EAST OF THE ARSINOEION



FIG. 20.—SOUTHERN PART OF THE TERRACE WALL EAST OF THE ARSINOEION



FIG. 23.—SACRISTY, SEEN FROM THE SOUTH



FIG. 24.—SUPPORT OF HELLENISTIC BENCH FOUND IN THE SACRISTY

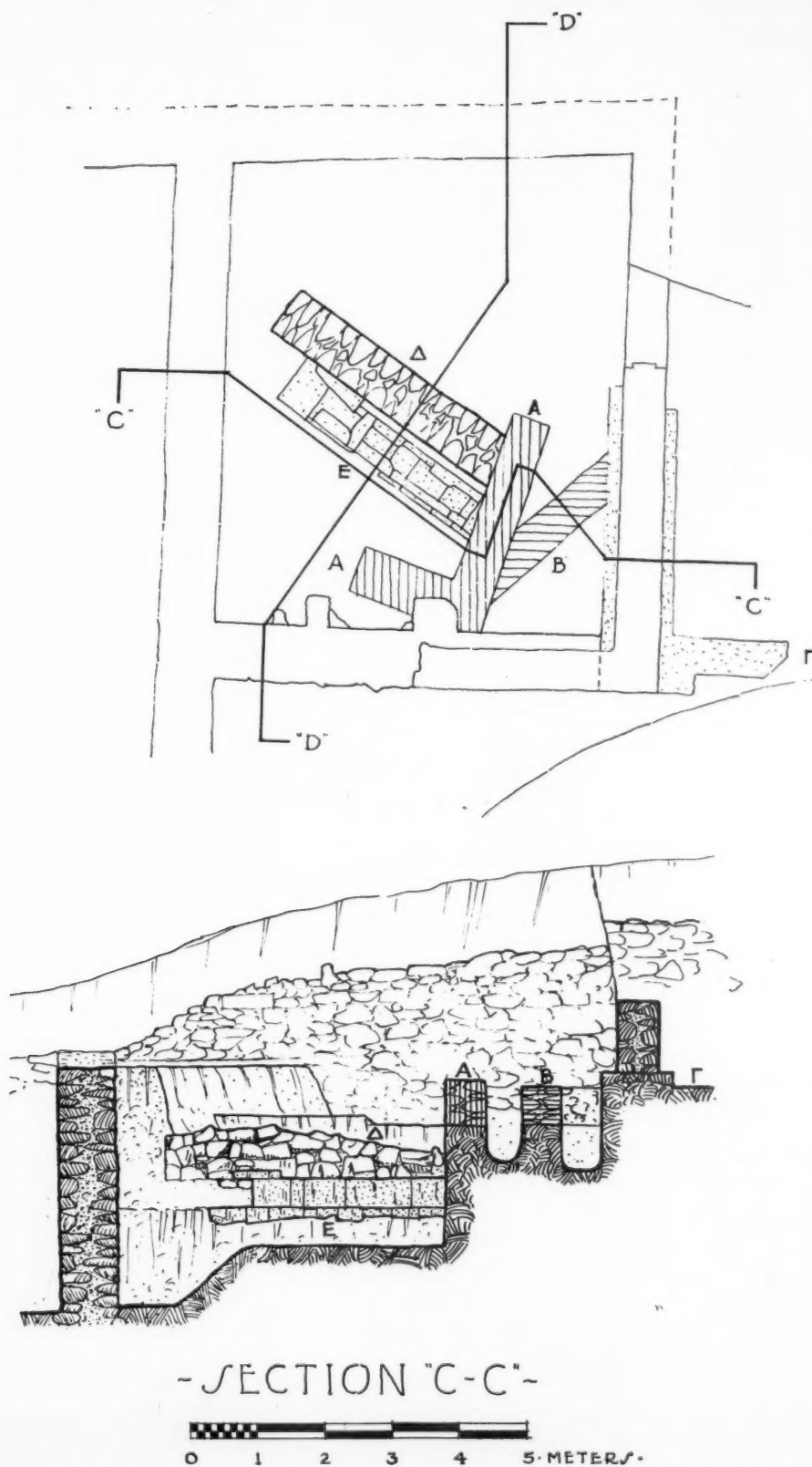


FIG. 22. — SITE OF THE SACRISTY, SECTION SHOWING THE VARIOUS SUPERIMPOSED BUILDINGS

north wall of this building (fig. 6, left foreground). The exact original extension eastward is not known, since a late restoration led to a renewal of the whole east wall, including the southeast corner.

The building had an entrance slightly north of the center of the west wall, where it could be approached from the space between the Arsinoeion and the southwestern corner of the Anaktoron. A secondary door must always have led through the eastern part of the south wall to the area east of the Arsinoeion, since the southwest corner of the Sacristy practically abuts against the Arsinoeion. The Sacristy was erected in the same early Hellenistic building period in which the Arsinoeion was built and the Anaktoron restored. It was roofed, and originally had two projecting wall piers flanking the western entrance which probably supported the beams of the ceiling together with an originally corresponding pair of piers in the east wall. Two marble bench supports of Hellenistic style (fig. 24) are preserved from its interior installation.³⁰ Still more important, several inscriptions were found in the interior. They belong to the well known class of catalogues of mystae. They have various forms; one of them (found where it had fallen in the south part of the Anaktoron) being an elongated block with a *tabula ansata* of very early, Late Hellenistic type, two of them being high rectangular slabs. It is characteristic of these stones that invariably they are neither building blocks nor stelae, but rather thin slabs, with narrow smoothed off edges and roughly receding cuttings behind them. Apparently they were included in the stuccoed walls of our building, which must have been literally plastered with such documents. Documents of this shape, including both those which we found and others of the same type which were found in the Austrian excavation of this same section, or were reused in other places on the island, cover a period from about 100 B.C. to the third century A.D., i.e., nearly the whole period in which catalogues of mystae are known. The best preserved texts discovered here this year are the following:

1. Rectangular slab of marble, prepared for insertion in a wall, but with a wedge-shaped lower projection for insertion in the floor too. H. 72.5 cm.; W. 36.5 cm.; Thick. 9 cm.

1. Ἐπὶ β[α]σιλέως
Θεωδωρούτους
μύσται εὐσεβεῖς
Βεροιαῖοι:
5. Τι(βέριος) Κλαύδιος Εὐάλιος,
Οὐλπία Ἀλεξάνδρα,
ἡ γυνὴ αὐ[τοῦ],
Γά(ιος) Ἰτύριος Βιούδης·
Δοῦλοι
10. Κλαυδίου Εὐαλ[ίου]:
Στάχυς,
Παρ[ώνος],
Θηβάϊς·
ἔτους Α Ξ C

³⁰ A similar support, different from those found in the "New Temple," was discovered by the Austrians in the western river valley and it seems to belong to the same series: *Untersuchungen auf Samothrake* ii, p. 29.

The stone is especially valuable because of its complete preservation and its date in the year 261 of the Macedonian era, i.e., 113 A.D., as well as for its new names.

2. Upper right corner of rectangular marble slab prepared for insertion in a wall. Broken at the left and below. Sketchy indication of incised acroteria. The inscription between ³¹ delicately incised pairs of guide lines. Present h. 20.2 cm.; pres. w. 16.0 cm.; thickness 4.0 cm.

1. [Ἀγαθὴ Τύχη
[Ἐπὶ βασιλέω]ς Φλ(αβίου) Ῥηγείνου
[τοῦ - - - - -]ηλίωνος
[μύσται εὖσε]βεῖς:
- - - - -

3. Three connecting pieces of the middle part of a marble slab, prepared for insertion in a wall. Broken above and below. Present h. 36.4 cm.; w. 30.8 to 31.5 cm.; th. 1.5 to 4.4 cm. Second century A.D. letters.

1. t̃inianus q(uaestor) prov(inciae) A[ch](aiae),
Sex(tus) Palpellius Candi-
dus Lulittianus,
C(aius) Modius Asclepiades,
5. A(ulus) Vereius Felix,
Bato Batonis,
Purpurio.

Obviously the end of the catalogue is preserved and, as usual, lists the initiated persons in their social order, with the slaves at the end. Unfortunately, most of the name of the first man is lost, together with the dating formula. For the restoration of line 1 we are indebted to Dr. Bloch. The spacing and preserved trace of the first letter of the province allow no alternative.³²

4. Rectangular marble slab, prepared for insertion in a wall. Broken below. Present h. 55 cm.; w. 39.8 to 39.2 cm.; thick. 7 cm. Above, incised indication of cornice and acroteria, on the former line 1. Most of the original document is preserved and, given its manneristic style, it may be dated in the beginning of the third century A.D. (fig. 25).³³

1. Ἀγαθὴ Τύχη
Ἐπὶ βασιλέως Ἰου-
νίου Ἡρώδου μύσται
εὖσεβεῖς Θάσιοι:
5. Ἀρισταγόρας Εἰσιδώρου,
Μ(άρκος) Ἀντώνιος Ὀπιδᾶτος Φιλίπεύ

³¹ It is not impossible that the fragment *CIL* iii, 722, with similar lines, belonged to the lower part of the stone and to a later addition to the original text.

³² For the indication of an official position, which is rather rare in the Samothracian documents, compare *IG* xii 8, 214, where the reading naturally should be Q(uaestor) Macedoni(ae). See rightly, Dessau 4055.

³³ Compare the Thasian inscriptions *IG* xii 8, nos. 327 and 382 (between 213 and 217 A.D.).



FIG. 25.—INSCRIPTION, FOUND IN THE SACRISTY



FIG. 26.—SACRISTY, VIEW OF EAST PART FROM THE WEST



FIG. 29.—FOUNDATION Γ AT SOUTHEAST CORNER OF THE SACRISTY



FIG. 30.—EARLY WALLS (Δ, Ε) IN THE SACRISTY



FIG. 31.—ARSINOEION, REMAINS OF EARLY WALLS FROM THE WEST

10. Δοῦλοι Ἀρισταγόρου:
 Φιλούμενος,
 Μαγιανός,
 Φιλόστοργος,
 [N]υμφικός leaf
 ρ . .
 !ς

Aside from its well-preserved state and its baroque style of lettering, the inscription offers an amusing detail. As the text reads, the document was originally intended only for people from Thasos, i.e., for Aristagoras and his slaves. In line 6 Marcus Antonius Optatus, a Roman citizen from Philippi, was later added to a stone (probably by a lucrative trick of the administration) for which Aristagoras certainly had already paid. This line was squeezed in and the scribe got into trouble at the end: he left out one Π of Philippeus, used a ligature and added the ς below. Nevertheless, he imitated faithfully the style of the original document. The leaf in line 11 probably marks the original end. Thus lines 12 ff. may have contained names of slaves of Optatus.



FIG. 27.—LATE ROMAN CLAY LAMPS FOUND IN THE SACRISTY

The Hellenistic building seems to have persisted unchanged until a far-reaching restoration took place at a very late period (fig. 26). The whole east wall (upright to 1.50 m.) and the south-east corner, including the side door in the south wall, were renewed. Numerous spoils of earlier buildings are included in these restored walls, which are connected with the third and latest period of the terrace wall east of the Arsinoeion. Naturally the floor was renewed also and it, too, contained earlier stones. One of them is one of the Hellenistic bench supports; another, the above discussed catalogue of Thasian mystae (no. 4, fig. 25). The benches were renewed with crude supports. A number of late Roman coins, the latest of which is dated 313/4 A.D., were found beneath the floor and indicate the date of this restoration. Poor as this fourth-century restoration is, its size, which includes the terrace and probably the last restoration of the Anaktoron, is an indication that the cult still flourished in this age. Another interesting feature is the discovery of a whole set of late Roman lamps of a unique type (fig. 27). Some of them were found beneath the floor level, others standing on it near the east wall. They can be dated with some degree of certainty in the early fourth century A.D. and, with their traces of smoke, give evidence of the use of the building for nocturnal ceremonies. Thus its use during rites, the existence of the benches, and its archival character seem to justify giving the name Sacristy to the building. A strange feature of its destruction may be mentioned. The building seems to have collapsed long before the final catastrophe of the Arsinoeion and the Anaktoron, probably in

the fourth century, and this may mark the end of the official cult. No débris from the upper structure of these buildings was found in the Sacristy. But in the southwest corner, the interior was deliberately packed with broken tiles, which were filled in there in order to level the ground in a period after the cult had ceased to exist.

A single find of major interest made in the building is an almost completely preserved small bronze Greek jewel chest (fig. 28),³⁴ of the type known so well from ancient representations.

The Sacristy, built early in the third century B.C., as was said above, succeeds a number of earlier structures in this area (Γ, A, B, Δ, E—figs. 3, 22). Here, for the first time, we were so fortunate as to trace the continuous history of the site to a very ancient origin. In the major part of its south wall, the Hellenistic building uses an earlier foundation of rough polygonal rocks, which makes an angle beneath the southwest corner of the building. A section of the foundation of the western wall of this earlier structure (Γ) was uncovered between the Sacristy and section H of the Arsinoeion (fig. 29). This foundation ends at a slight distance from the euthynteria of the Arsinoeion, having been irregularly destroyed when it was necessary to make space for the round building. It is clear that the corner Γ is a fragment of a predecessor of the Sacristy. As may be concluded from the natural conditions of the ground, this was a slightly smaller, but otherwise similar structure. Thus, the present Sacristy, squeezed in between the Arsinoeion and the Anaktoron, quite logically succeeded an earlier structure situated more to the south, and destroyed in the project which provided for the building of the Arsinoeion. This pre-Hellenistic building, Γ, already follows the orientation of the Anaktoron, from which it was separated by a terrace about 7 m. wide. We may assume that it was built in the same period as the Anaktoron, i.e., about 500 B.C., and that it represents the Sacristy of the fifth and fourth centuries. It, in turn, apparently succeeds an earlier structure (A) of different orientation which we discovered beneath the floor of the Sacristy (fig. 6, left foreground). Here the western corner of the foundation of a rectangular building is preserved to a level 10 cm. beneath that of Γ and the Sacristy. The southwestern wall ends in an irregular destruction. But the northwestern wall ends in a regular face at a distance of 2 m. from the west corner, showing that at this point the foundation was interrupted for the entrance of the building. Assuming that this structure A was similar to Γ and the Sacristy, it seems quite logical that only this corner was preserved, and that the rest of it was destroyed in later building periods. This second ancestor of the Sacristy is certainly earlier

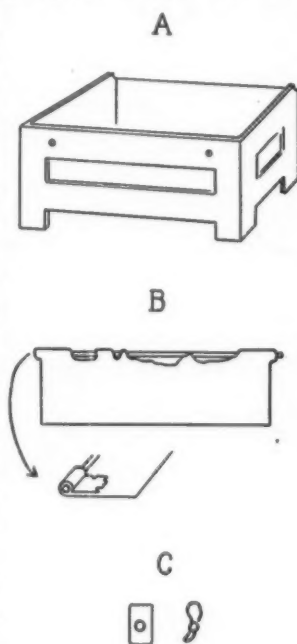


FIG. 28.—GREEK BRONZE CHEST AND FRAGMENTS OF LID, FOUND IN THE SACRISTY

succeeds an earlier structure (A) of different orientation which we discovered beneath the floor of the Sacristy (fig. 6, left foreground). Here the western corner of the foundation of a rectangular building is preserved to a level 10 cm. beneath that of Γ and the Sacristy. The southwestern wall ends in an irregular destruction. But the northwestern wall ends in a regular face at a distance of 2 m. from the west corner, showing that at this point the foundation was interrupted for the entrance of the building. Assuming that this structure A was similar to Γ and the Sacristy, it seems quite logical that only this corner was preserved, and that the rest of it was destroyed in later building periods. This second ancestor of the Sacristy is certainly earlier

³⁴ Its purpose can, of course, have been that of a votive offering. A ritual use of such a small "kibotion," however, seems possible. See Plutarch, *De Is. et Os.*, 39.

than the Anaktoron and belongs to the early archaic period, although no finds ascertaining its exact chronology were made in the fills which had been confused by later building activities. But it is obvious that the northern corner of building A was removed, and thus the whole structure destroyed about 500 B.C. when the Anaktoron was built. It was succeeded by Γ. In the southwestern corner of the Sacristy, a very irregular foundation wall (B) is preserved to a level 25 cm. beneath the floor. In spite of its different direction, it may well be a foundation of a terrace connected with the southwestern side of A.

Most surprising were the discoveries of still earlier structures (Δ, E) again of a different orientation and on a much deeper level (fig. 30). Δ is a section of a polygonal wall of small stones placed on a level 1.65 m. beneath the floor of the Hellenistic Sacristy, and preserved at some points to a height of 75 cm. The rising slope of the higher bedrock behind Δ makes it clear that it is part of the southeast rear wall of a structure extending towards the northwest. A few potsherds extracted from a section of this wall which was mutilated at both ends by later builders, point to a date in the late eighth or seventh centuries, the period in which Greek settlers might well have come to the island. On the other hand, it is obvious that in its direction and position, wall Δ belongs to a restoration of the still earlier structure E discovered before and beneath it. This wall, E, shows a remarkable technique. The piece preserved is an orthostate dado of soft yellow stone. The orthostates (42 cm. high) are placed on a kind of euthynteria which in turn is supported by a small stone foundation on bedrock. The orthostate dado consists of two outer orthostate revetments, connected by binders at intervals of about 2 m., and it has an interior fill of stones. This fill was removed from one section in the hope of ascertaining the chronology. But no finds appeared within it. In front of the orthostates, however, a small section of earth was discovered where burnt débris had accumulated to the height of the lower edge of Δ, giving evidence of the destruction of building E by fire. The ceramic fragments from this destruction include early pottery of a local character which it is not yet possible to date, together with a very few glazed potsherds which may be from the Greek Geometric period. Thus it seems probable that at some time in this period, the structure to which this earliest wall on the site of the Sacristy belongs was destroyed.

Now we may return once more to the area of the Arsinoeion. Included in its fill, we found extensive parts of the same pre-Greek building (fig. 3). The investigation has not yet been concluded here and only the surface of the ruins preserved by and included in the Hellenistic fill of the Arsinoeion has been uncovered. Its material, orientation, and construction are identical with the earliest wall beneath the Sacristy. An east-west wall, starting with what seems to be its ancient end near the interior of sections B/C of the Arsinoeion foundation, is visible to a length of 9.63 m. (figs. 15, 16, 31). The euthynteria slabs in its western part are on the same level as those of the wall beneath the Sacristy. At a distance of 5.30 m. from the western end, some orthostates are preserved, and 1.73 m. farther to the east this orthostate wall had a corner, from which another such wall ran toward the north. At the same point, the east-west wall continues with euthynteria slabs on a level 57 cm. higher, and inside the eastern foundation of the Arsinoeion this section meets a very irregular set of euthynteria slabs running in a north-south direction. The irregular,

slightly curved course of these blocks, the fact that bedrock emerges to the east of them, and that its north end continues in a levelled bedrock which supports some field stones, show that this easternmost wall was a terrace wall. And it is obvious that a higher corridor with a ramp or stairway running in a south-north direction was placed here behind the lower parts of the structure preserved in the central and eastern sections of the Arsinoeion. The difference between the course of the east wall of this lower part, and that of the wall beneath the Sacristy shows that they belong to two different units of a structural ensemble which extended farther south as well as farther north. Here, in the southern part of the Anaktoron, we discovered another fragment (fig. 5, center) of the same complex, indicated in our plan. Situated on a much deeper level, it is the corner of a foundation of roughly polygonal rocks. It seems obvious that it is the western corner of the hall or courtyard, to which E belongs. We already have indications of an extension farther northward of the same building complex. And it certainly extended southward beyond the Arsinoeion. The character of this very early building, which covers a sizeable area with a number of connected units on various levels, together with its monumental osthostate construction makes it more plausible to interpret it as a palace than to associate it with any limited religious purpose. The date of the building has not yet been ascertained, but it probably belongs to the Late Bronze or very early Iron Age. It reveals the deep pre-Greek roots of the Samothracian mystery cult which later continued to employ a non-Hellenic idiom. Later people believed this cult to be connected with old traditions of a mythological past which were represented in its performances. It is tempting to connect these discoveries with the legends of the pre-Greek, probably Illyro-Thracian kingdom of Elektra, Dardanos and Aëtion. The continuation of our work in this neighborhood will certainly throw further light on these problems.

Apart from the local succession of buildings we have observed at least one fact indicative of the continuity of the religious rites from this remote past. In the débris of the destruction in front of wall E, the potsherds show the same types of small cups and dishes which remain characteristic of the later strata of the sanctuary. On the other hand, it seems that parts of the oldest building remained in use down to the Classical period. Indeed, thus far no other structure has been discovered in the interior of the Arsinoeion later than the "palace" or earlier than this early Hellenistic building. But in its western part, at a slight distance to the north of the western end of the prehistoric wall, we found a strange deposit framed by a small stone wall, which is parallel to and apparently built in a corner of the old building. It consists of a deposit of burnt débris of pottery and stones, and enormous quantities of bones of sacrificial animals. The expert analysis of Dr. Barnum Brown and Dr. Edwin Colbert of the American Museum of Natural History has revealed that the latter are invariably bones of young pigs and sheep.³⁵ This fact, again sustaining the basically chthonic character of the cult, is quite important. As far as they have been excavated, the ceramic finds of the upper part of the deposit, as well as marble fragments, are evidence of a date of burial during the archaic period and in the fifth century B.C., although some fragments belong to very early local varieties (fig. 32).

³⁵ Bones of pigs and goats were found around the altar near the Old Temple: *AJA.* xlii, 1938, p. 126.

In the period when farther to the north and east the Anaktoron and the predecessor of the Sacristy (Γ) covered the buried ruins of the old building, part of it, or of its ruin, still seems to have been in use, in the region of the western half of the Arsinoeion. We hope that the further exploration of this early building and its continuation outside the excavated area will establish more detailed evidence of the character of the civilization to which it belongs and of its history.

Outside the area of our main excavation, we engaged in a particularly important task: the complete excavation and renewed thorough investigation of the site on which the famous Victory once stood. In spite of the outstanding importance of this great masterpiece of Greek sculpture, and of several successive investigations made on the site of its discovery during the nineteenth century, this site has remained practically unexcavated.³⁶ Its renewed and thorough exploration has been rightly postulated in recent years. In view of the plan for a new and definitive publication of the statue which the Musée du Louvre is preparing now, we decided to assist in this important work by excavating the site. We greatly enjoyed the visit and coöperation of M. J. Charbonneaux, who came to Samothrace in order to be present for this work, and who was kind enough to take an active part in it. The work has not yet been completed. The results of our investigation will be put at the disposal of the Louvre for the forthcoming publication. It suffices to state here that the former publications are inexact and misleading in regard to basic points.

On the occasion of the construction of the New Museum at a distance of about 150 m. to the northwest of the sanctuary, the southeastern corner of a small Byzantine chapel was uncovered beneath the northwestern corner of our Museum building. The badly destroyed and rather poor structure was excavated and explored, so that all the evidence needed for future excavation was secured, before this part was covered again. The beginning of an apse and the southern part of the east wall (3.30 m. long), as well as the eastern end of the south wall with a side door 1.70 m. from the corner were preserved. The white stuccoed walls are built partially of spoils from earlier buildings. The floor was thoroughly destroyed in this section. An annex, 4.25 m. long adjoining the corner to the south and accessible through the above mentioned side door, had been added later. It was paved with tiles, and contained a kind of mensa in its southeastern corner. A grave, covered with tiles and containing fragments of a skeleton, was found in the eastern foundation ditch of the Museum. Other observations were made concerning post-antique building activity in this region.

The objects of all kinds found during the campaign throw much new light on the civilization of the island, the cult of the sanctuary and its art. To them were added a considerable number of monuments found by chance during the last year, especially stones reused in modern buildings. Thanks to the very helpful interest of Mr. Platon Terzis, a whole complex of such stones was rescued from the Byzantine chapel of Hagios Demetrios in Chora, which has been restored recently.

A considerable number of architectural fragments, ranging from the Greek to the Byzantine ages, has been added to the collection of the future museum. It includes an excellent piece of the parapet of the Arsinoeion (fig. 33), a fine Hellenistic round

³⁶ For the history of the exploration, see H. Thiersch, *Nachrichten der Gesellschaft der Wissenschaften zu Göttingen* 1931, pp. 337 ff.

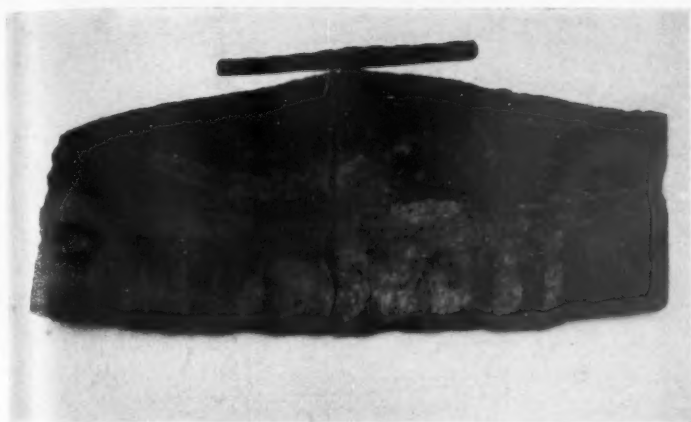


FIG. 32. — MATT PAINTED CERAMIC FRAGMENT FROM THE BONE DEPOSIT



FIG. 33. — FRAGMENT FROM THE PARAPET OF THE ARSINOEION



FIG. 34. — FRAGMENT OF A MARBLE STATUE



FIG. 36. — CLAY OBJECTS, FOUND IN THE ANAKTORON



FIG. 35. — FRAGMENTARY MARBLE ARM



FIG. 37. — VOTIVE ALTAR, FOUND IN THE ANAKTORON

altar discovered by Mr. Shaw in the eastern section of the sanctuary, and pieces of a marble sima from a fourth-century temple in the upper town.

Fragments of marble and bronze statuary found in our excavation are numerous. They date from the archaic to the Roman periods, but their pitiful preservation shows the devastating activity of lime burners, who began their work immediately after the decay of the cult.

Among the sculptures is the upper part of a bearded male figure wrapped in a himation (fig. 34). It was extracted from the wall of a modern house, but originally it came from the river bed in the sanctuary.³⁷ Although it is smaller in size, its style, weathering and workmanship relate it to the female figure discovered in 1938,³⁸ and it may well be that both sculptures originally belonged to the same pedimental group. The fragments of a marble arm (fig. 35) of beautiful fifth-century workmanship were found in fallen position near the south door of the Sacristy and apparently belong to a statue which still stood on the terrace above in the late period.

Part of a large relief, apparently belonging to an architectural monument and ending in a sloping upper edge, the angle of which is too flat for a pediment, shows the upper corner of a Doric building of archaic aspect.

The complete absence of terracotta figurines in the sanctuary is remarkable. Some small fragmentary marble statuettes of local workmanship of the Roman period, some of which are unfinished, have been discovered. One of these is the lower part of a female figurine of a fifth-century type, with the incised head of a horse, mule, or ass at its lower left side, a type which is apparently derived from the Demeter with the horse's head known from Eleusinian statuary.

The ceramic finds cover a wide range from the prehistoric beginnings to the late Roman period and include many interesting pieces. The early local ceramics are still too scanty to afford definite conclusions, and as yet no sufficiently stratified area has been explored. The Greek ware, including a number of black-figured and red-figured fragments, found for the first time in Samothrace, is composed chiefly of small kantharoi, skyphoi, bowls and dishes.

More than one hundred fragments with incised or scratched inscriptions have been found. Some of them are fragmentary votive inscriptions, such as Θ[ε]ο[ῖς], ἱε[ρόν], and, in some cases, a single letter Θ may be the abbreviation of Θεοῖς or Θεῶν (fig. 17). But the majority, dating from the archaic time to the fourth century, belong to a puzzling group of scratched graffiti. Here, one or sometimes two letters have invariably been scratched on the interior surface of small bowls. It is evident, too, that this was done when the vases were still complete. In some cases two successive, superimposed signs, indicative of repeated use, are visible. The majority of the letters of the alphabet are represented; although some letters such as X and Λ occur often, others are infrequent. The frequency of the X as well as of such combinations as ΙΚ, ΙΑ excludes the use of these marks for a simple system of numbering. In all probability, these bowls were used by worshippers and these signs indicate designations for particular places or orders. Aside from these problems, the character of the letters offers interesting contributions to the local alphabet. In addition to the incised and scratched vases, we should like to mention a number of brick stamps and

³⁷ Modern cut below. Pres. h. 41.3 cm.

³⁸ *AJA.* xliii, 1939, p. 144, fig. 15.

stamped amphora handles; some of the latter are valuable for having been found in the fill of the Arsinoeion.

Among the smaller objects of various materials, the following deserve to be mentioned because of their probable religious significance. We have found numerous small, wedge-shaped clay objects with a projecting edge at the lower side of one face (fig. 36). They have been found only in the Anaktoron; they have no holes for suspension and are certainly not weights. Can they be connected with the pyramids or cones mentioned as symbols in mystery cults?³⁹ Several times we found small, flat, finger-shaped clay objects of equally enigmatic character. A heavy, oval-shaped iron ring, the size of a bracelet, should be mentioned also, since it is not absolutely impossible that it is connected with the mystical iron rings of the Samothracians.⁴⁰

A more definite document of the religious creeds of Samothrace is a silver finger ring, probably of the Roman period, decorated on a round disk with an incised design (fig. 39). In the center, the two S-shaped Kabeiric snakes⁴¹ are represented with sketchily indicated heads, and in each of the two side sections, a star appears. This combination points to the well known syncretism of the Dioscuri with the Kabeiroi of Samothrace.

A considerable number of bronze coins, dating from about 300 B.C. to the late Roman period, was found and others added by purchase to the local collection. Some of the coins found in stratified layers represent new types and begin to fill the gaps between the well known later Hellenistic coinage and the recently discovered archaic coins of Samothrace.

The stone inscriptions are of great importance. Aside from those found in our excavations and mentioned before, we have rescued a number of others from modern abuse. Some of them are already known (*IG* xii, 8 nos. 250, 223, 185, 180, 169, 242, 192; *CIL* iii, suppl. 7373 = *IG* xii, 8, p. 39, n. 7).

Among these, two fragments of a "lost" stone seen by Cyriacus of Ancona in the fifteenth century (*IG* xii, 8, no. 191) and decorated with a relief representing a round building will soon be made available in a separate discussion. A few of the eighteen new inscriptions belong to statue bases. Among them is a second fragment of *IG* xii, 8, no. 242. The new fragment allows the restoration of the entire text of an important historical document, which also will be published separately in the near future. A Hellenistic grave stele with the inscription Διονυσόδωρος[ς] | Μητρώνακτος was secured and given by the local Epimeletes, Mr. Makros. A small round Hellenistic marble altar (fig. 37) of interesting shape (h. 17.8 cm.) was found near the main door of the Anaktoron. It bears the inscription:

1. Ἀρίωνος
Χαιρίτης,
Τιμόδο[τος],
Χαίρις,

³⁹ *Orph. fragm.*, Kern p. 101, n. 31; Clem. Al., *Protrept.*, II, 19; cf. also *AJA.* xliii, 1939, p. 140, n. 3.

⁴⁰ Lucret. VI, 1044; Plin. *NH.* 33, 23; Isid. *Et.* 19, 32, 5.

⁴¹ See *AJA.* xliii, 1939, p. 138.



FIG. 39.—CAST OF
SILVER RING

5. Κρίτωχος
Θεοῖς
Με[γάλοις]

Most of the new inscriptions (12) are catalogues of mystae, which add considerably to our knowledge. The following texts deserve a preliminary publication here.

1. Thasian marble, flat slab for insertion in a stuccoed wall, probably of Sacristy, broken below, and at right side. Upper end with part of pedimental slope and angular acroterion. Pres. h. 35 cm.; pres. w. 12.1 cm.; th. 6.2 cm.; first century A.D. letters.

(1) [Ἐπι] | βασι[λέως δεῖνα] | L(ucio) Non[io ---] | M(arco) Arru[ntio ---] |
(5) [Cos(ulibus)] | K(alendis) Sept(embriis) m[ystae pii] | L(ucius) Arrunti[us ---] | promag[ister ---] | Ti(berius) Claudius L[---] | (10) Le[gatus ---]

2. Limestone. Broken at lower and right edges. Square slab for insertion in a wall, probably of the Sacristy. 32 x 32 cm.; th. 8 cm. (fig. 38).

1. [Ἐπι βασιλέως]
Μητρώνακτος

M · Iunio · Silano L · Norbano Bal[bo Cos]

VIII idus Iunias mystae pii

- | | | |
|-----|----------------------------------|----------------------|
| 5. | [.] Marius L · f · Ste · Schinas | Servi Schin[ae] |
| | Iulia Q · f · Quinta | Cedrus An ---- |
| | Symmysta[e] pii | Lectus ----- |
| | [.] Iulius Sp · f · Pap · Niger | [Er]mas Opt[atus] |
| | [---] Clodius Stephani[us] | Ἐπ[. . . .] Sc ----- |
| 10. | [– Mar]ius Fructus | Loc[rius] Tu ----- |
| | lus Perg[a]menus | Ph[oeb]us ----- |
| | [Men]ander Chius | Paner[os] ----- |
| | [-----] usius | Epaphus ----- |
| | | Paideros Ep ---- |
| 15. | | Sarula ----- |
| | | Felix Xo[uthos] |

EPOPTAE

- [– Mar]ius L · f · Ste · Schinas
[Iuli]a Q · f · Quinta
20. [.] Mar[us] Fructus
[Ἀγορα]γομοῦντος Ἀπολλ[οδώρου τοῦ]
Διοδότου

This document, which was rescued from a stairway in the harbor, Kamariotissa, is of extreme importance and exceeds in its completeness and wealth of information most of the stones of this category known hitherto. The date is 19 A.D., the year of the annual magistrate Metronax, who bears a theophore name, which is very common and not insignificant in Samothrace, and of the consuls M(arcus) Iunius Silanus and L(ucius) Norbanus Bal[bus] (lines 1–3). The new date of the initiation, the eighth day before the Ides of June, shows again that at least from the first cen-

ture B.C. on, the initiation need not depend on participation in the rites of a festival. Many mystae were initiated at their convenience when, during a voyage, they stopped in Samothrace. In this case as well as in some other documents, the initiated apparently belong to one boat load. The boat was probably owned by the first man, [Ca(ius)?] Marius L(uci) f(ilius) Ste(llattina) Schinas (line 5). He traveled with his wife Iulia Q(uinti) f(ilia) Quinta (line 6). The rest of the company were inferior and introduced as symmystae. They were [?] Iulius Sp(uri) f(ilius) Pap(iria) Niger, probably a relative of Iulia (line 8); two other Romans [— —] Clodius Stephanus and [Mar]ius Fructus, probably in the service of Schinas (lines 9–10); and three Greeks from Pergamon, Chios and [—]us respectively, who may have been the officers of the boat, since it is highly probable that the twenty-two slaves of Schinas, whose names are inscribed in two columns at the right of the stone, represent the crew of the boat. The cognomen Schinas is, it seems, not otherwise known. The stone is especially important because of the relation of the complete lists of mystae and epoptae. Three of the people mentioned above as mystae—Schinas, Quinta, and Fructus—are listed below as epoptae. They apparently obtained both degrees on the same day. Thus it was possible during a short visit to pass from the beginning of the initiation to the high dignity of an epoptes in the course of one day. On the other hand, the restrictions for admission to the epoptia must have been considerable, as the small ratio of epoptai to mystai shows. Since we know from other documents that the restriction was not of a social nature, it must have been either a moral restriction or, more probably, the higher degree entailed a considerable financial outlay. In this connection, it is notable that in our document of the three Romans mentioned in ll. 8–10, only one, Fructus, obtained the epoptia (l. 20), and that socially he seems to have been less prominent than Niger, who did not get it. Like some other similar stones, the document ends with an additional local date of the agoranomos.



FIG. 38.—INSCRIPTION WITH CATALOGUE OF MYSTAE

3. Rectangular slab of marble prepared for insertion in a wall. Restored from two connecting pieces. Broken below. Pres. ht. 38 cm.; w. 31 cm.; th. 13 cm. The beginning of a catalogue is preserved: (1) L(ucio) Fundanio Lami[a] | Aeliano | Sex(to) Carminio Veter[e] | cos(ulibus) | (5) X K(alendas) Mai(as) mystae pii | L(ucius) Pomponius | Maximus Flavius | . . . ianus Q(uaestor) Pro Pr(aetore) | — —

Only the first name, probably followed by those of his companions, is preserved after the consular date (116 A.D.). The observations made about no. 2 are also valid for the date of initiation. For the indication of the official position of the man, which was recognized by Dr. Bloch, see above p. 346.

4. Reused building block, marble. Broken below. Pres. ht. 60 cm.; w. 19 cm.; th. 25 cm. Third-century A.D. letters. (1) [Ἀγαθῆι] | Τύχηι | ἐπὶ Βασι | λέως
Κλ(αυδίου) | (5) Διονυσίου | μύστης | εὐσεβῆς | Παρά | μονος | (10) Ζωίλου |
Σιρραῖος.

Of the catalogues not published here, one is of especial interest. It is a fragment inscribed in one column with a long Greek catalogue of mystae of which thirteen names and patronymika are still preserved. A Latin catalogue was added to the right side and is dated in the year 46 B.C.: "[C(aio)] I[u]llo Caesare | M(arco) Lepido cos-(ulibus) a(nte) d(ies) | V k(alendas) [N]ov(embrias)." It lists members of the gens Paccia and of their household.

The increasing epigraphical material promises to throw more and more light on the institutions of the Samothracian cult and on the character of the people initiated there. It becomes increasingly evident that very great numbers of members of Roman gentes of the late Republic and early Empire zealously obtained initiation for themselves and their "familiae" whenever they came to this region.

The richness of the new evidence obtained during this first campaign of methodical work in the sanctuary of Samothrace, and summarized in this report, reveals how much may still be expected in the future. It encourages us to proceed with a gradual and comprehensive excavation of the site.

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NECROLOGY

Wilhelm Dörpfeld.—Dr. Wilhelm Dörpfeld, the father of scientific archaeological excavation, died at his home on Leukas on April 26, 1940, at the age of 87. He received his early training at the Technical School in Berlin, where he studied Architecture. His first excavation at Olympia was followed by his participation in Schliemann's investigations on the site of Troy. Later he took part in excavations at Mycenae, Tiryns, Orchomenos and Crete. He also worked on the Acropolis in Athens, where he discovered the Old Athena Temple. From 1900–12 he was Director of the German excavations at Pergamon. His interest in the Homeric question led him to conduct excavations at "Pylos" and on Ithaca. He was secretary of the German Archaeological Institute in Athens for 25 years and was long a leader of the German school of archaeologists. He was one of the first scholars to study the construction of the ancient theatre and his work here is of lasting importance. Among his best known publications are: *Troja* (1884) with others; *Tiryns* (1886), with Schliemann; *Troja und Ilion* (1902) with others; *Das griechische Theater* (1896); *Die Arbeit zu Pergamon, Die Bauwerke* (1902–1911); *Die südliche Stätten von Pergamon* (1901); *Homers Odyssee* (1924); *Die Heimkehr des Odysseus* (1925); *Alt-Ithaka* (1927); *Strabon und die Küste von Pergamon* (1928); *Alt-Olympia* (1935) and *Alt-Athen und seine Agora* (1939). Although some of his theories, especially those of his later years, were highly controversial, his contribution to the scientific pursuit of archaeology remains one of fundamental importance.

GENERAL AND MISCELLANEOUS

Maidenhead.—In *AJ.* xx, pp. 245–271 (April, 1940), A. D. LACAILLE discusses the palaeoliths from the gravels of the Lower Boyn Hill terrace. The article supplements one in *AJ.* xix, pp. 166–181, in which the palaeoliths from the higher

part of the same terrace were discussed. Examples of the following cultures are described and illustrated: Abbéville (Chellean), Clacton, St. Acheul, Levallois. The suggestion is made that this locality provides evidence for a passage from Clacton to Levallois.

Decorated Skeletons from Palestine.—In *BSA.* xxxvii, session 1936–37, pp. 123–127 (3 pls.), D. A. E. GARROD contributes "Notes on some Decorated Skeletons from the Mesolithic of Palestine." The skeletons were found in the Natufian (Mesolithic) cave known as the Mug-haret el-Wad in Mount Carmel. Five are described. The decoration consists of circlets or caps and necklaces (and in one instance apparently ornamentation of a garment) made of dentalium shells arranged in a fan-like manner, in some instances with pendants of bone. All the decorated skeletons, the sex of which can be determined, are male, and only relatively few of the skeletons discovered are decorated. Probably the decoration indicates that the wearer was of some special importance. The variety of design is considerable.

Mesolithic Cultures of the Rhineland.—A systematic survey of the region of Cologne, Rhin-berg, Sieg has resulted in many new finds of microlithic implements; some new cultures were observed, occasionally showing Tardenoisian and Campignian forms (W. LUNG, *Germania* xxiii, 1939, pp. 77–85).

The Double Axe in Prehistoric Europe.—In *BSA.* xxxvii, session 1936–37, pp. 141–159 (4 figs., of which one is a map), C. F. C. HAWKES writes of the Double Axe in Prehistoric Europe, publishing two hitherto unpublished axes in the British Museum and showing on a sketch map the distribution of the various forms of axes, from the Minoan type, derived from Syria, and the hammer-butted battle-axes of Troy and Thermi to the shaft-hole axes of deer antler, the Nordic stone battle-axes of Denmark, and the stone axes of Britain. He shows how different types are interrelated. The most important cen-

ters of early metallurgy (about 2000 B.C.) north of the Alps were in Middle Germany, and thence double axes, not intended for use, but as ingots or currency, were exported to the West and Southwest. The double axe in Western Europe seems to have been derived directly or indirectly from Crete by an overland route and to have had religious significance, as it had in Crete. Some other forms of axe had a similar significance.

Rough Stone Monuments in Western Europe.

—In *BSA.* xxxvii, session 1936-37, pp. 96-105, H. J. FLEURY discusses the megalithic monuments of Western Europe found in Portugal, Spain, France, the West Baltic region, and the British Isles. Some have corbelled domes, others are covered with large cap stones, in others the two methods are combined. There is also great variety of forms, some having long entrance passages, others short ones or none at all. The general conclusion is that the elaborate structures with corbelled domes are probably the earliest, perhaps introduced by voyagers from the Eastern Mediterranean. The others would then show a process of deterioration. A single region sometimes shows several forms, which may indicate different tribes or races with different religious customs. Circles of standing stones, as at Stonehenge, suggest a transition from wood. Such alignments of standing stones as at Carnac may perhaps be in general assigned to the Bronze Age, but megaliths need not all belong to a very early period around 2000 B.C. One of the alignments at Carnac passed over a Bronze Age mound. The meaning of the monuments may be connected with the "soul-substance" or, in some instances, through sexual symbolism with fertility and good luck.

Gold in the Ancient Near East.—Leaning upon a seemingly complete bibliography (173 items), R. J. FORBES studies the questions concerning "Gold in the Ancient Near East." The places where it was found are discussed and shown on a map. The main source for it was Egypt, "where the principal gold mines were situated on the coast of the Red Sea, in the desert along it and in the Nubian desert. We find more than 100 old mines in these districts and the valleys in the schists are full of alluvial workings." "The civilized river-valleys or lowlands of Egypt, Palestine, Syria and Mesopotamia are devoid of important gold-mines. This means that gold was practically always imported from regions which, except in the case of Egypt, were not permanently or never under control." "The ancient mining or

extracting processes (which are still used) were very simple because gold always occurs as a metal in all its ores." . . . The methods used in the case of alluvial gold are pan-washing and placer-mining; hydraulic mining probably was not used before Roman times. There was also the more difficult extraction of gold from quartz rocks, called vein- or reef-mining. The gold used in the ancient Near East until the sixth century B.C. was mainly the native alloy, with a high proportion of silver (sometimes also of copper or iron). Refining of this native gold was not practised until the latter part of the second millennium B.C. The precious metals were separated from the base ones by cupellation. In Roman times the salt-process and the sulphur-process were known as methods of separating gold and silver (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 237-254).

The End of the Civilization of Gumelnița.

—In *BSA.* xxxvii, session 1936-37, pp. 73-82, VLADIMIR DUMITRESCU discusses the earlier dates for the end of the civilization of the Gumelnița type in Rumania proposed by J. Nestor, D. V. Rosetti, and D. Berciu and concludes that this civilization persisted for at least two centuries after the beginning of the Bronze Age in Central Europe, that is to say, until some time in the sixteenth, or perhaps even into the fifteenth century B.C.

Tumuli Culture in S. W. Germany.—H. GROFENGIESSER publishes an inhumation burial of the Bronze Age tumuli culture found at Mannheim. F. Holste takes this burial as a starting point for a survey of the cultural affiliations of the Neckar valley in the Bronze Age (*Germania* xxiii, 1939, pp. 6-12).

Urnfield Burials.—Two urnfield burials from the Middle Rhine are published by R. v. USLAR. Both contained datable Hallstatt A objects (*Germania* xxiii, 1939, pp. 13-18).

Möriger Swords in Hallstatt.—P. REINECKE argues that swords of Möriger form, usually associated with South German urnfields, survived in the Hallstatt of Eastern Alps and Styria (*Germania* xxiii, 1939, pp. 18-23).

Painted Hallstatt Pottery.—W. DEHN publishes a tomb found at Kreuznach and discusses the regional differences of the painted Late Hallstatt wares in the Rhine—Main region. He suggests that the red-on-white pottery may have connections with the red and black pottery of Silesia (*Germania* xxiii, 1939, pp. 86-93).

La Tène Fortress Wall.—W. DEHN publishes an investigation and a reconstruction of the "ring-wall" of Preist (near Trèves). The wall consisted of layers of stone with interceding wooden framework and can be dated in the Early or Middle La Tène period (*Germania* xxiii, 1939, pp. 23–26).

La Tène I Brooches.—In *AJ.* xx, pp. 276–280 (April, 1940), C. F. C. HAWKES describes examples from Deal, Preston Candover, and East Dean. The first two are decorated with coral and may be dated to the third century B.C.; the third is probably local work of the second century.

Egginton, Bedfordshire.—In *AJ.* xx, pp. 230–244 (April, 1940), F. G. GURNEY and C. F. C. HAWKES report on an early Iron Age inhumation burial, probably dated in the second century B.C. While the two complete pottery vessels permit the dating of the burial, the chief interest in the burial is in the skeleton, with its evidence of arthritis, of a fractured fibula, and of a badly punctured tibia.

Germanic Bronze Collars.—The earliest group of Germanic bronze collars is derived from Irish gold *lunulae* of the early Bronze Age according to E. SPROCKHOFF (*Germania* xxiii, 1939, pp. 1–6).

Alamannic Tombs.—Some Alamannic tombs were found in Schwenningen; one of these was among the richest known. Excellent enamelled disc-fibulae of gold and silver gilded five-knobbed brooches, as well as beads, were among the objects discovered in this burial (W. VEECK, *Germania* xxiii, 1939, pp. 40–42).

The Vikings of the Mediterranean and the Vikings of the North.—In *BSA.* xxxvii, session 1936–37, pp. 13–20 (pl.), A. W. BRØGGER, after a brief account of the great colonizing period of the Greeks, which lasted some 300 years, and during which Greek voyagers circumnavigated Africa, probably reached Norway, and may even have found America, draws a parallel between those Vikings of the Mediterranean and the much later Vikings of the North. Each developed the boat into a sea-going ship and each eventually sent out colonies. About 800 A.D. the Norse expansion was in full flower, Vikings appearing off the coasts of England, Scotland, and Ireland. The Viking Age ended in the twelfth century. Norwegian ships reached France, Spain, even Constantinople; Norwegians settled the Faeroes, Iceland, and Greenland. From Iceland Eirik Raude led a colony to Greenland in 986, and in the same year Bjarne Herjulfsson, passing to the south of Greenland by accident, sighted the coast of the

western continent. The son of Eirik Raude, Leif Eiriksson, sailed from Greenland in the summer of 1001 and went as far as Massachusetts. The next summer he returned to Greenland. In the succeeding years other voyages may have been made, but we have no records of them. In 1020, however, an expedition left Greenland and was away three years. A place was found where the voyagers built huts intending to remain, but hostile Indians made them give up their colonizing venture, and those of them who survived returned to Greenland. But even after this the Norwegians in Greenland visited Labrador to fetch timber.

J. L. M.—*BSA.* xxxvii, session 1936–37, is a special number containing papers presented to Professor J. L. Myres in honor of his seventieth birthday. On pp. 192–193 (pl.), ELLIS H. MINNS discusses the letters J. L. M. The origin of J is probably to be sought in the growth of a capital J alongside I among the versals beginning paragraphs in Carolingian MSS. It was adopted as an alternative form, and when V and U came to be used as consonant and vowel, J and I followed suit. L, *lamed*, is the most indestructible and persistently recognizable of letters. The oldest M, on Ahiiram's coffin, being vertical seems to be "water poured forth," but the horizontal wave becomes the regular form. In Latin five strokes become four, in Pompeian cursive and in uncial three. Fine examples of the three letters (and a Q) in the Bury St. Edmunds' twelfth-century MS. of the gospels are published.

EGYPT

Egyptian Art.—"Egyptian art is dominated by this principle: 'Both drawing and statue are human creations and should contrast with reality.' In drawing (or painting) this means that the picture is a two-dimensional representation of the spatial reality. The Egyptian artist has to translate reality into a two-dimensional picture, he has to create a new harmony between his subject and the flat surface of wall or stone. . . . In sculpture the statue is a lifeless picture of the model shaped from some material. The life of the subject to be depicted is frozen to lifelessness by shaping the dead material of the statue according to strict geometrical rules. The special properties of the sculptor's material are used by him to determine the form of his statue." These ideas of the Dutch painter J. Texeira de Mattos are carried out by W. VAN OS (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 28–35). Strange is the idea that the breast of

the human body, in drawing, should be shown in "three-quarter-view," obliquely.

Egyptian Shipping.—"Were the Egyptians Builders of Sea-going Ships?"—J. ODERWALD answers in the negative. Although most skilful in building, out of small logs, river-boats, even as large as 200 feet and more, and capable of carrying an obelisk of 700 tons, they had no native wood fitted for sea-going ships. The cedars of the Lebanon, which were used for the "divine boats," likewise were unsuitable for this purpose. Egyptian overseas-trade was extensive; there is no real indication, however, that they handled it themselves and used their own ships, when they travelled to Byblos and Punt (Red Sea Coast). (Even Queen Hatshepsut's ships, loaded with the produce of her famous expedition to Punt, "were probably mere river craft, which had relieved the true sea-going vessels of their cargo. . ."). An exception is seen in the Syrian expedition of King Snofru (4. Dyn.), perhaps a late repercussion of the visit of Mesopotamian ships, which (this is yet a point of controversy) had reached Egypt in the late Predynastic Period. Conservatism, in ODERWALD's opinion, was the reason that the Egyptians never learned to build sea-going ships, which caused at the end the downfall of their empire (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 35-42).

Temple of Medinet Habu.—L. LEEUWENBURG gives an exhaustive archaeological synopsis of the history of the temple-complex of Medinet-Habu. Building there began under Queen Hatshepsut (after 1500 B.C.), flourished under Ramses III (after 1200) and continued until Roman times. Destruction took place about 1100 B.C. (in the civil war under the last Ramessids) and about 715 B.C. (Nubian invasion?). Excavations began in 1859. Those of the Oriental Institute of the University of Chicago, 1924-1933, are listed in detail (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 43-59).

Egyptian Bronze Statue.—G. ROEDER gives a minute description of a large late bronze figure of the hawk-headed god Horus wearing the double crown. Its excellent preservation fits it especially for exemplifying the technique of forming the casting-mould by putting together wax-impressions from different models for each part of the body. The throne and the body are all one piece, the crown has been made separately. The artist seems to have deliberately enhanced the polish of the metal by omitting the scratches on the hair, crown, kilt, etc. The figure stood prob-

ably in a temple somewhere in the Delta (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 265-278, pl. I-III).

A Neo-Memphite Bas-Relief.—In *The Journal of the Walters Art Gallery* i, 1938, pp. 13-17, JEAN CAPART discusses two fragments of an Egyptian relief with funerary scenes, now in the collection of the Walters Art Gallery. The fragments are proved to be from the same slab since an inscription above the relief which formed an upper band refers also to the scene in the lower panel. A complete reconstruction of the entire piece is possible. The deceased is represented seated at the right end of the slab, facing the left. In the upper register musicians are entertaining him, while in the lower band games are being played. These are traditional funerary scenes which can be traced back to the Old Empire.

An Egyptian Stela of the Early New Kingdom.—In *The Journal of the Walters Art Gallery* ii, 1939, pp. 19-23, HERMANN RANKE publishes an Egyptian stela now in the Walters Art Gallery at Baltimore. It is of limestone with painted reliefs. The scene is divided into two bands with additional symbols and inscriptions above and below. In the upper register are represented a man and his wife seated facing a stone table which is piled high with food. On the opposite side of the table stands a daughter holding out a bowl of wine to her parents. In the lower panel are shown two more daughters and four sons. The predilection for graceful curved lines, even though they are contrary to nature, which marks the art of the New Kingdom, is apparent here. The composition is excellent and the relief is clearly the work of a highly gifted artist. The stela was carved in the early part of the eighteenth dynasty, possibly during the reign of Thothmes III.

Scarab.—W. A. VAN LEER publishes an exceptionally fine example of the lion-hunt-scarab of Amenophis III, about forty of which are now known (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 278-280, pl. V b).

Sporting Kings of Egypt.—A. DE BUCK translates (into Dutch), with some annotation, the two lately discovered inscriptions of Amenophis II that lend unusual color to the picture of this pharaoh, who was so strong that nobody else could bend his bow, by describing in detail his conspicuous performances in archery and rowing, and his passion for horses and for driving a chariot; on account of his prowess and strength his father, Thutmose III, appointed him king when

he was eighteen (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 9-14).—Simultaneously, the same subject has been treated more comprehensively by B. VAN DE WALLE (in *Chronique d'Égypte* xiii, 1938, pp. 234-257), where the author traced the idea of Pharaoh excelling in sportsmanship and bodily strength through the centuries.

Egyptian Tomb-Endowments.—M. ODEWALD JR. discusses the Old Kingdom contracts concerning tomb-endowments, translating (into Dutch) and explaining the major stipulations in the five texts of this sort known to us so far. His answer to the problem of the legal status of the tomb-endowments is that they did *not* form a body corporate; rather, like the god in the case of temple-endowments, the deceased himself remained proprietor, by whose order the mortuary priests acted. Finally he points out how, as time went on, the funerary services increasingly were entrusted to members of the family of the deceased (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 20-23).

Manichaeism in Egypt.—W. GROSSOUW gives an account of the discovery and the contents of the Manichaean manuscripts in the Subakhmimic dialect of the Coptic language that were found in Egypt in 1930 and are now partly in Berlin, partly in London. They are likely to increase considerably our knowledge about Manichaeism. Three volumes have been published so far: "Homilies," I. Part (four orations); "Kephalaia," I. Part (dogmatic explanations); "Psalms" (hymns for different occasions, among them thirty for the Bema-festival, the foremost festival of the Manichaeans). These are works by disciples of Mani (while the "Letters," still unpublished, may have been written by Mani himself), and translated, possibly, directly from the Syrian originals. Besides Mani, some of his Egyptian followers are glorified in the hymns. Christians are ridiculed for believing in the reality of Christ's human body (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 62-65).—Simultaneously, Manichaean Egypt is explored by W. SESTON, who reveals especially their political rôle as partisans of the Persians, and their subsequent punishment, under Diocletian (*Chronique d'Égypte* xiv, 1939, pp. 362-372; *Mélanges R. Dussaud* i, pp. 227-234, 1939).

MESOPOTAMIA

Religious Texts from Assur.—Many of the "Keilschrifttexte aus Assur religiösen Inhalts," published by E. Ebeling in the years 1915-1923, have not yet been deciphered, transcribed and

translated. F. M. TH. BÖHL (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 104-113) continues (from no. v) to make up for this deficiency by summarizing the more important texts. No. 214, which he translates, belongs to the Assyrian coronation-ritual: The god Assur invites all the other gods and divine powers to a drinking-bout and addresses them one by one. Nos. 176-179 and 147 are critically translated by TH. C. VRIEZER, with the assistance of Böhl (pp. 114-135). "They belong to the large group of Hemerologies or better Menologies. These are lists of the successive months and the days of each month with the prescriptions or warnings what one must do or not do on this certain day, and with the answer to the question, if and why these days are favorable or unfavorable for certain enterprises."

Mesopotamian Temple-Building.—The Sin-Temple VI at Khafaje (Akšak), according to TH. A. BUSINK, shows Sumerian influence, as its cella has a bent axis. Its plan, on the other hand, is very similar to that of the temples of Uruk, which are typically Semitic, i.e., regular, rectangular, symmetrical. If this is true, "then the Sumerians can hardly be called the oldest supporters of civilization in Lower Mesopotamia" (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 219-221).

A Babylonian Relief.—B. A. VAN PROOSDIJ publishes and discusses a Babylonian terracotta relief of a *moschophoros* (the prototype of the Good Shepherd). "The figure is a representative of the king, to render homage to the god of the temple incessantly" (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 260-262, pl. VIII).

IRAN

Iranian Religion.—J. H. KRAMERS, in a review of the new book by H. S. Nyberg on the religions of ancient Iran, accepts his views as a whole, and his rejection of the thesis that Zarathustra was contemporary with the first Achaemenids, but is sceptical in many other respects. He emphasizes his own impression, "that the new religious vision of the prophet manifested itself also just in the re-interpretation of old terms." In an appendix he translates (into Dutch), and comments on the "Zoroastrian Credo," *Jasna* xii, 1-9. A critical translation (into Dutch) of the "Book of the Admonitions of Zartušt" (*Pandnāmak i-Zartušt*), by H. K. J. COWAN, follows (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 225-236).

Syrian Influence on Iranian Sculpture.—HENRI SEYRIG (*Syria* xx, 1939, pp. 177-194) con-

tinues his studies of Syrian antiquities with a discussion of the large bronze Parthian statue from Shami (Iran), the basalt stela of a high-priest from Hieropolis, and representations of the divine hand. In the light of Palmyrene parallels, the Shami statue illustrates the important fact that a single artistic milieu prevailed from Syria to Iran.

SYRIA AND PALESTINE

On the occasion of the seventieth birthday of the Dutch biblical scholar, Prof. Dr. B. D. EERDMANS, his works concerning the Ancient Near East are listed and shortly summarized in *Jaarbericht Ex Oriente Lux* vi, 1939, pp. 4-8.

Ugarit.—GEORGES DOSSIN (*Syria* xx, 1939, pp. 169-176) shows that Ni-iq-me-PA (the king of Alalah) is to be read Niqme-Had. The first element is derived from the Semitic root nqm, "to avenge," while the second is the god (H)ad(a)d. The same personal name, or a variant thereof, is borne by Nqmd (probably pronounced Niqmêd). The latter, who ruled over Ugarit when the remarkable Old North Canaanite tablets were written, is now known to have been a vassal of the Hittite monarch Suppiluliuma.

A Mycenaean Crater from Ras Shamra.—In *BSA*, xxxvii, session 1936-37, pp. 212-235 (37 figs.), CLAUDE F. A. SCHAEFFER publishes a Mycenaean crater found in the ruins of a house at the foot of the acropolis of Ras Shamra-Ugarit in a context indicating a date in the fourteenth century B.C. The designs are painted with great skill, indicating developed routine. The painter, a real artist, emphasizes certain characteristics to give greater decorative elegance or more style to his design. On each side of the vase is a chariot with four-spoked wheels, only one of which is visible. Similarly, only one horse appears for each chariot, though two are essential. The chariots belong to type C of Sir Arthur Evans' classification. On one side (A) two persons stand in the chariot, on the other (B) three. All are clad in a stiff cloak, perhaps of heavy linen, the upper part only being visible. The painter has committed several errors in his drawings of the chariots and harness. Before the chariot on side A a slender figure, either nude or wearing a skin-tight garment, strides along with head thrown back. He holds a small wand in one hand and seems to be playing with it like a drum-major. Before the chariot on side B is a gigantic bird with a long neck and curved beak. It is squatting on the ground and seems to be tethered by a cord or chain. Probably a scene

from some legend or tale is represented about a god or hero who subdues a mighty bird. The plumes and eggs of the ostrich were known to the Aegean world, and may have aroused the imagination. This bird, however, does not look like an ostrich. On the base of this vase, underneath, is a design painted in red, which resembles the Greek letter rho. It seems to be the mark of the atelier or school in which the vase was painted. Similar marks on other vases are known. Perhaps they may enable us to distinguish various schools of ceramic artists in Mycenaean times. Many other Mycenaean and Minoan vases and other objects are cited in comparison with this crater.

Churritic Language.—J. FRIEDRICH gives an account of "The Present State of our Knowledge about the Churritic Language": material, decipherment, grammar. It is one language, split into different dialects; related to, but different from the Urtartaeic language (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 90-96).

Jericho Tomb 13.—In *BSA*, xxxvii, session 1936-37, pp. 259-262 (2 figs.), A. J. B. WACE discusses the date of vases of Mycenaean shape found in Tomb 13 at Jericho. If they are imitations of Mycenaean vases, they cannot be earlier than the vases which they imitate and cannot be dated earlier than 1400 B.C. If the context in which they were found is certainly of the fifteenth century, these vases must be regarded as anticipations, not imitations, of Mycenaean vases. If they are imitations, the objects with which they were found must be dated to the fourteenth century, not the fifteenth.

ANATOLIA

New Evidence for dating the Settlements at Troy.—In *BSA*, xxxvii, session 1936-37, pp. 8-12, CARL W. BLEGEN, after a brief discussion of previous views of Trojan chronology, tells of the new evidence, chiefly pottery, brought to light in the excavations carried on by the University of Cincinnati from 1932 to 1938. Early Helladic ware is found in the upper strata of Troy I, is common in Troy II, III, and IV, and still occurs in Troy V. Clearly Troy I-V falls within the period of the Early Bronze Age. Troy VI in its earliest stages contained Minyan ware and polychrome matt-painted ware as well as some imported Mycenaean ware (LH I) and in later stages the "Palace Style" of LH II. The first stage of Troy VI, which was ended by an earthquake, yielded much imported Mycenaean pottery, local imitations, and

Cypriot ware. In VIIa there was little imported ware, but Late Mycenaean vessels were freely imitated; but a great conflagration ended this settlement about 1200 B.C. In Troy VIIb some imported Mycenaean pottery of the "Granary Style" occurs. The sudden appearance of *Buckelkeramik* indicates a change in foreign relations and a long period of slow fusion with an intrusive European element. During the life of the eighth settlement Troy passes through Geometric and Orientalizing phases and becomes completely Hellenized. The Classical Period is scantily represented, but with Hellenistic times (Troy IX) the city is rebuilt, and maintains an uninterrupted existence down to the fifth century of our era. A provisional chronology is as follows: Troy I=3200-2600 B.C.; Troy II=2600-2300; Troy III=2300-2200; Troy IV=2200-2050; Troy V=2050-1900; Troy VI=1900-1300; Troy VIIa=1300-1200; Troy VIIb=1200-900; Troy VIIa=900-550; Troy VIIb=550-350; Troy IX=350 B.C.-400 A.D.

Solar Discs from Alaca-Hüyük.—In *BSA*. xxxvii, session 1936-37, pp. 160-165 (10 pls.; 2 figs.). HAMIT ZUBEYR KOSAY publishes and classifies solar discs found in excavations of the Society for Turkish History in the years 1935-39 at Alaca-Hüyük. They were found in shaft graves in which the corpses were buried in crouching posture. They belong to the Copper Age, separated from the Hittite period by a thick stratum, and were found at depths varying from 5 to 10 meters. Ten types (tableaux) are illustrated and described, varying from simple circles with four rays or diagonal bars to stags without circles, these last being apparently a simplification or development of the forms in which the circle contains a roe, a stag, or even a stag and two lions or a stag and two peacocks. There was evidently in Anatolia in the third millennium B.C. a highly developed civilization influenced by that of the Eurasiatic steppes. Its connections with northern Eurasia and its influence upon the religions of Greece and Rome will be treated in the book *Alaca-Hüyük iii*.

West Anatolian Vases at Cambridge.—In *BSA*. xxxii, session 1936-37, pp. 166-171 (2 pls.; 1 fig.). W. LAMB publishes eight vases in the Fitzwilliam Museum at Cambridge. One is recorded as "from Asia Minor." The find-spots recorded for the others are not authenticated, but probably two are from Ephesus, one from Philadelphia, and one from Sardes. Three recorded as "from Yortan" can hardly have been found there. The

vases are not very striking in appearance. Six of them are ascribed to dates well before 2000 B.C., a time when the western culture was still fairly homogeneous. The two others may well be somewhat later.

Hittite History.—A. A. KAMPMAN finishes his elaborate synopsis of Hittite history (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 201 ff.; continued from iii, iv, and v). Part VIII covers the period of Egyptian-Hittite rivalry in Syria (1325-1284); part IX, the Egyptian-Hittite domination (1284-1200) after the "everlasting" treaty; both versions (Egyptian and Hittite) are translated. Part X deals with the crumbling of the Hittite empire, its destruction by the "Peoples of the Sea" shortly after 1200 B.C., and the survival of Hittite cultural elements in the petty states of eastern Asia Minor and northern Syria. The article is supplied with a map and a synchronistic table.

Temple-Building in Ancient Cappadocia.—TH. A. BUSINK studies the questions concerning temple-building in ancient Cappadocia. After discussing the existing literature, he shows that probably temple-building was foreign to the original population and sprang up in the third millennium only under Mesopotamian influence. Nor had it been known to the Indo-Europeans when they arrived at the beginning of the second millennium. The open air had been the place of worship. Busink sees the same attitude still effective in the Hittite temples, where the numerous windows make the god live "in a world of light and sun, the cella radiating through the whole temple, as in Egypt the whole temple is covered by the darkness of the adyton." He describes the five temples of Boğazköy, proving that they are temples, not palaces, and attempts to date them relatively and even absolutely (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 203-219).

CYPRUS

An Iron Age Painted Amphora.—In *BSA*. xxxvii, session 1936-37, pp. 56-72 (3 pls.; 7 figs.). P. DIKAIOS publishes an amphora now in the Cyprus Museum. It was found probably at Vartivounas, a cemetery near Platani, Cyprus. It was given to the Museum by Wing-Commander O'Brien Hubbard. It may be dated about 900 B.C. The neck has broad bands of black round the top and base, and the space between is divided into panels which are either filled with geometrical ornamentation or left plain except for concentric circles or dots.

The chief feature of the decoration of the body is a wide zone at the level of the handles, on which is a figured representation. On the front the central part is occupied by a female figure on an elaborate throne. Her head is in profile towards the left, her bust nearly in front view, the legs are filled in with black paint, but the rest of the figure is drawn in outline. The feet rest on a square stool in front of the throne. A kind of drapery covers the lower part of the body and projects in front of the legs. The bust is nude and the breast is clearly indicated. The right hand holds the end of a drinking siphon, bent at right angles, with the other end dipped in an amphora set on a small stand. With the left hand the figure touches a small table on which are three jugs with two round objects (bowls?) between them. To the left is a female figure pouring from a jug held in her left hand some liquid into the jar in front of the enthroned figure. In her right hand she holds three more jugs. Her bust is nude and she wears a kind of skirt painted a dull brown. To the left of this figure is the protome of a bull incorporated in the decoration of the handle. Behind the throne is a winged, bearded sphinx smelling a flower held in the raised right paw.

On the reverse a group of five dancing figures holding hands and moving to the right is represented. Four are similar to the pouring figure on the front, but the central one, who holds a lyre, has shorter hair and is nude, unless the dull purple paint that fills in the body to the knees may represent a close-fitting garment. This figure is male, the others female. Between the figures are branches. The drawing is poor.

The enthroned person may be a deity or a deceased woman deified. The custom of using a siphon for drinking from a jar appears on Syro-Hittite cylinders of the latter part of the third millennium. The scene of an enthroned deity receiving offerings seems to be of Egyptian origin but is seen on reliefs of the Hittite area, in Phoenicia, and elsewhere. The dress of the woman pouring into the jar and of the dancing women points to Minoan Crete, as does the bull's head. The liquid may be blood of the sacrifice or wine. Dancing groups are found both east and west of Cyprus. Monuments related to the amphora are illustrated and discussed.

A Cypro-Phoenician Bronze Bowl.—In *BSA.* xxxvii, session 1936-37, pp. 92-95 (fig.), RENÉ DUSSAUD publishes a bronze bowl (coupe) found in Greece, probably at Sparta, and since 1910

in the Louvre. In the center is a rosette surrounded by a guilloche, then comes a band on which are six oxen walking to right with their heads down, then another guilloche, then a wide band and a guilloche. On the wide band is a goddess seated on a chair with back and footstool, before whom is an altar with offerings. Behind the goddess are four musicians, three with harps, one with a tambourine. Behind the musicians, facing away from them, are seven women holding hands. In front of the foremost woman is a sort of crane raising its beak towards a lunar crescent. This part is indistinct. Then come persons carrying offerings, perhaps seven in all, but part of the decoration is gone, then apparently a priest at the altar. Comparison with other objects shows that this bowl is of Cypriote origin.

AEGEAN CIVILIZATION

Neolithic Black Ware in Greece and on the Danube.—In *BSA.* xxxvii, session 1936-37, pp. 26-35 (fig.), V. GORDON CHILDE discusses neolithic black ware. He shows that mere inspection cannot reveal whether the blackness of pottery is due to free carbon (from smoke, etc.) or to reduction of iron salts in the clay. But consistent variations from black to red probably indicate intentional oxidation and reduction of ferruginous clays. Macedonian and Greek wares show just these variations. The same is true of the pottery of the Morava culture north of the Balkans, and there are other similarities. Variations of like sort and similarities in shapes and burnishing are found in Crete, Anatolia, Cilicia, North Syria, and Mesopotamia, also in Malta and Sicily. At Ras Shamra the burnished vases have been dated at 4000 B.C. and earlier and at Tepe Gawra earlier still. "The technique of lustrous paint can most easily be derived, perhaps through Chios and Cyprus, from the Tell Halaf complex of Syria or its predecessors in the 'latest neolithic' at Mersina." Burnished wares, then, begin earlier in Cilicia and Syria than in Greece and the Morava valley.

Lasithi in Ancient Times.—In *BSA.* xxxvii, session 1936-37, pp. 194-200, J. D. S. PENDLEBURY gives a sketch of the history of the elevated district of Lasithi in Crete. The earliest inhabitants seem to have arrived toward the close of the Neolithic period. At the cave of Trapeza they lived long enough to develop a peculiar local pottery. On the hill Kastellos are the first neolithic graves found in Crete. This culture lasted well into

the Early Minoan period. In EM II houses were built on the Kastellos and Trapeza became the cemetery. The EM III period seems to have been prosperous. In MM I the custom of burial in pithoi was introduced. No great changes took place in MM II and MM III, though there was progress. In LM I the passes leading up to the plain were guarded by numerous forts. There are no signs of the great catastrophe which overcame the whole of Crete about 1400 B.C. Perhaps the Lasithiotes defended themselves against the invaders. About 1250 B.C. the Achaeans came to Greece and probably to Crete, and about 1100 came the Dorians. The old Minoan population, with the relatively few Achaeans, fled to the high regions. At Karphi Achaean and Minoan elements of culture are found commingled. Then when times were peaceful the city was quietly deserted, and about 900 B.C. a new city was founded on the hill of Papoura, which seems by archaic times to have become, with its suburbs, the fourth largest city of Crete, and Lasithi thrived from the seventh century on in an unprogressive way. The waterways which divide the plain into rectangles may be of Roman times. There was in Byzantine days a large settlement at Auguste. In Venetian times the plain was depopulated, but it was resettled, doubtless by descendants of the old inhabitants.

Aegean Metrology.—In "Poids préhistoriques grecs de Malthi en Messénie" (*Arsberättelse* 1936-37, Lund (*Bull. de la So. Roy. des Lettres de Lund*)), NATAN VALMIN discusses numerous stone and terracotta objects, found by him at Malthi in Messenia. These objects of various sizes and shapes he believes to be weights. He comments on the scanty evidence published in this field of metrology and explains the poverty of metrological data by the failure of archaeologists to recognize as weights the many stone and terracotta objects found at sites and recorded under "Miscellaneous Objects" as pounders, grinders, or polishers.

Dr. Valmin, using the scales of a little store in Vasiliko, near the site of Malthi excavated by the Swedish expedition in 1933 and 1934, weighed these various objects. That the "weights" vary in grams somewhat is not surprising, for doubtless in the Bronze Age as today the weights were not sufficiently or often enough checked with an official standard. In country towns of modern Hellas a variation is found in the weights.

Usually stones, capable of resisting wear, were

used as weights. This is the usual material in Egypt, Palestine, Syria, Mesopotamia, and India and it is not strange that stone weights were used in Mediterranean lands. Sometimes terracotta weights were used instead in the latter region. At Malthi, 76 objects are provisionally accepted as weights. These are classified as to shape and illustrated in six figures. Square, spherical, hemispherical, conical, and some other shapes are represented in the stone and terracotta objects. Some of the so-called loom-weights are probably weights, and the thin oval plaques, usually designated as "amulets," may be weights. The porphyry talent from Knossos is more or less pyramidal in shape and there is evidence of a relation between Messenian and Minoan systems of weights.

The 76 "weights" are exhaustively treated from various angles in nine tables. In Table I, six columns, the number of the object, inventory number, location on the plan, date, weight in grams, and a brief description are given. They are all from MH or LH. Table II gives weight and the multiples of a unit in three columns (possible systems) and the possible subdivisions of a mina that each may represent. Table III treats of the objects by periods (MH and LH). Tables IV-VIII give the same data but with the objects classified by shapes, while the last table (IX) groups the objects with their values and proportions by locality in the excavation.

As a result of his study, the author believes that there were two systems of metrology in operation in Messenia: a duodecimal and a decimal system. The first (A) is based on a unit of ca. 8 grams, the second (B) has a unit of ca. 9 grams. There is even a trace of a third system, C. Series A appears to belong to a system in which the mina was divided into 60 units. Series B is less clear but seems to be related to a system with the mina of 50 units, but also with a mina of 60 divisions. Both systems are evidenced in both the MH and the LH periods. To take an example at random, from Table IV, Cubes: No. 31, MH, weighs 139.20 grams, represents 18 x 7.73 under system A, 15 x 9.28 under B, 12 x 11.6 under C.

Following the tables is an *Appendix* dealing with a bronze weight in the form of an *astragalos*, found in the little temple of Pamisos in Messenia in 1933. Its weight, 56 grams, paralleled at Malthi, may be taken as one-tenth of a Babylonian silver mina. The metrology in "prehistoric" Messenia seems based on the Babylonian standard.

The "weights" found at Malthi present new and

rich material for the study of prehistoric metrology, says the author, and his attempts at analyzing them and attributing them to systems are provisional. He has offered this study with a view to throwing light on certain objects hitherto neglected and to suggesting some lines of investigation in the museums and in the field.

The Cretan Griffin.—In *BSA.* xxxvii, session 1936-37, pp. 106-122 (25 figs.), H. FRANKFORT contributes "Notes on the Cretan Griffin," the winged lion with crested bird's head, which in the second millennium B.C. was important in Mesopotamia, Minoan Crete, and Mycenae and penetrated occasionally to Egypt and Anatolia. Many examples of similar forms are cited and illustrated. Close interweaving of influences emanating from various centers in the Near East characterizes the period following the movements of peoples which brought the Hittites to Babylon, the Hyksos to Egypt, the Kassites, Mitanni, and perhaps the Hurrians to Western Asia. The griffin appears throughout the Hyksos dominion. It reached Crete on imported textiles from Syria, which must be its place of origin. The griffin may be the terrible aspect of a great cosmic force, and the griffin-demon, with human body, the beneficent aspect of the same force. So the crested griffin may be ranged with the Harpies and Sirens.

Σιγύνη.—In *BSA.* xxxvii, session 1936-37, pp. 187-191 (4 figs.), SP. MARINATOS publishes and discusses two spear heads and the bronze casing of the shaft to which the smaller spear head belonged. They were found fifty years ago in the rich tholos tomb of Vaphio. One spear was heavy, the other light, a javelin for hurling as well as for thrusting. Both types are of Cretan origin. For such spears a rare word, σιγύνη, existed in Greece, and in Cyprus this was the common word for spear. The word is not Greek and may be Minoan.

GREECE

GENERAL AND MISCELLANEOUS

Father Zeus.—In *ARW.* xxxv, pp. 156-171, MARTIN P. NILSSON criticizes the view that Zeus was the god of the bright, laughing sky. Such an object was not sufficiently striking to attract the worship of primitive man. But the heavens as the place of storms and weather had everyday significance for him. Zeus was primarily a weather-god. A primitive title of Zeus was "father." This has been understood to mean "father of the gods," because it is so interpreted in Greek mythology.

But this cannot have been the original significance of the title, for all the gods who are his children are either immigrants like Ares and Aphrodite, Dionysos and Apollo or transformed Minoan goddesses like Athena and Artemis. The title is rather to be interpreted as *pater familias*, an interpretation which accords with the patriarchal organization of the early Indo-Germanic peoples. Zeus, in his more human aspects, is a projection of the head of the family and as such bears similar duties and responsibilities, such as those of protector, provider, and guardian of morals. The serpent forms of Zeus, such as Zeus Ktesios, probably arose in Greece under the influence of a Minoan house-serpent cult. The serpent which guarded the prosperity of the home was identified with Zeus, the home's divine protector.

Ἐχθρη Παλαιά.—In *BSA.* xxxvii, session 1936-37, pp. 83-91, T. J. DUNBABIN discusses the results and the dates of the war between Athens and Aegina of which Herodotus (v, 83-88) tells. The archaeological results of the defeat of the Athenians by the Aeginetans and Argives were: (1) the change of dress at Athens from Doric to Ionic; (2) the law of the Argives and Aeginetans that their pins be made half as large again; (3) that these pins be dedicated in the sanctuary of Damia and Auxesia; (4) that no Attic pot be brought into the sanctuary. The change in women's dress at Athens was a gradual process which took place in the middle of the sixth century. Few dress-pins have been found in Attica, none on the Acropolis, though they were worn. Elsewhere dress-pins were dedicated commonly, especially in Dorian sanctuaries of goddesses. "Spits," which are pins without discs or globes on the shaft, are also commonly dedicated. Neither spits nor pins have a standard size, though they show a general tendency to grow larger. The iron spit (and possibly pins also in some places) served as currency, and Pheidon of Argos changed the spit-currency to silver. The sanctuary of Damia and Auxesia has not been found, but the fifth-century inventory of their temple lists hundreds of pins. In the eighth century, Athens was a sea power, and her pottery was sold over a wide area. In the seventh century her naval power and foreign trade were far less, but there was never a general embargo in Aegina or the Argolid against Attic pottery. The weakest period of Athens commercially and in naval power is the first quarter of the seventh century, about the time of Pheidon, and the war with Aegina in which the Aeginetans were aided by the Argives,

probably under Pheidon, may be dated to that time.

Athens and Aegina, 510-480 B.C.—In *BSA*. xxxvii, session 1936-37, pp. 1-7, A. ANDREWS discusses the chronology of the relations of Athens and Aegina between 510 and 480 B.C. as told by Herodotus v, 81 and 89 and vi, 87-93. He concludes that the series of events described by Herodotus v, 74-81 and 81-93 begins not earlier than 506 and is over before the Ionic Revolt, which comes in 499 and was possibly followed by a war between Athens and Aegina. In 494 was the battle of Sepeia, followed shortly by the slave revolution at Argos. In 493 Athens fought with success the war of Nikodromus, and the Aeginetan submission to Darius may be in part due to this defeat. About 487 Aegina seized the theoris, and the prisoners were presumably exchanged for the hostages held by Athens since 491. Athens was defeated in her attempted reprisal. In 482 war began again and Athens built ships for it, but the war was stopped by the conference of reconciliation in 481.

Themistokles' Archonship.—In *BSA*. xxxvii, session 1936-37, pp. 263-270, H. T. WADEGARY shows that when Themistokles was archon the archon had greater power than later, chiefly on account of the wider scope of his jurisdiction and his more absolute control of it. In his day the archons presided over investigations and were also judges. Later the archon merely investigated, and the case was transferred to the Heliaia. This is Ephesis, the referring of a case from one tribunal to another, and in classical times it was automatic. Perhaps the *Eumenides* was performed when Ephesis had recently become automatic, for Athena behaves as an archon should behave after that had happened. The story told by Plutarch (*Aristides* 25) about Themistokles' indignant outburst against impartiality in the archonship would be out of color for classical Athens, but not for the time before Ephialtes. In 493 Phrynichos was condemned after the performance of his *Fall of Miletos*, in which he stressed the disgrace of the attempted appeasement of Persia, and in the same year Miltiades was acquitted on a charge of "tyranny." The condemnation cannot have agreed with the popular feeling, but the acquittal did, for Miltiades was elected strategos. That is the setting of Plutarch's story. When one of his backers says: "No more scandals when you are archon; you will be fair," Themistokles replies, "Fair? I'll be better

than fair, I'll make certain that the right side wins."

The Campaigns in Amphilochia.—In *BSA*. xxxvii, session 1936-37, pp. 128-140 (map). N. G. L. HAMMOND discusses "The Campaigns in Amphilochia during the Archidamian War" (Thuc. ii, 66, 80 f.; iii, 102, 105-114). He describes the region in considerable detail, showing just where the battles must have taken place and by what roads the troops marched. The campaign of 1829 in the war for Greek independence serves as an illustration. The writer has travelled much, largely on foot, in this region.

The Warp-Weighted Loom.—In *BSA*. xxxvii, session 1936-37, pp. 36-47 (pl.; 4 figs.), GRACE M. CRAWFORD describes the horizontal ground loom, the vertical loom with upper and lower beams, both of which have been used until modern times, and discusses in detail the upright loom without lower beam. The Greek terms relating to this loom are: ιστός, loom; αντίον, upper beam; κελόντες, ιστόποδες, side beams; ἀγνυθες, λαίαι, warp weights; κανίον, upper shed rod, or rod huddle, or also lower shed rod, though κάφος may have been another name for this; πηνίον, spool; κρόκη, weft; πήνισμα, weft on spool; στήκων, warp; σπάθη, sword beater; κερκίς, pin beater. Perhaps the reason why this type of loom was abandoned is that the weaver had to stand up and, if the loom was broad, walk back and forth at her work.

Lydian Meters.—J. JONGKEES, "The deciphering of the Lycian—The metrical elements in the poetry of Asia Minor," rejecting the results of F. W. Koenig, "Die Stele von Xanthos," except those concerning the Lycian meters, studies for his part the Lydian meters. The preference of the pentameter in Lycia as well as in Lydia makes him believe that the indigenous rhythm was very similar to it (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 88-90).

A New Fragment of a Poem.—ELIZABETH VISSEER publishes a small fragment of an unknown poem in hexameters, found in Egypt (Pap. Berlin 16352) which appears to mention Apollo as theriomorphic. She assigns the poem to the Alexandrian metamorphosis literature (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 60-62, pl. V a).

The First Triad of Nemean I.—In *BSA*. xxxvii, session 1936-37, pp. 207-211, W. H. D. ROUSE argues that in the first triad of Nemean I Pindar has a garden in mind rather than a house. βάλλω is the regular word for striking a scion in grafting

and should be so understood in lines 8 and 18. The thought then runs as follows: "Ortygia, blooming plant, bed of Artemis, my hymn sets out to plant praise for Chromios and thanks to Zeus; the gods' first-shoots have been struck, along with Chromios' deeds or prowess. Good luck is the top-fruit of renown. But now, my Muse, please scatter a few seeds of splendour for the island, which Zeus promised to make a fat and fruitful land, and to plant it upright like standing corn, with civilized life and abundance, and he has filled it with warriors and sportsmen—why, what a lot of plants are in season!—and I have not dropt one grain in falsehood."

The Part of Pylades in the Choephoroe.—In *BSA*. xxxvii, session 1936–37, pp. 201–206, H. J. ROSE argues that in the *Choephoroe* of Aeschylus all the lines from 653 to 706 usually assigned to Orestes should be assigned to Pylades. In line 562 he emends τε to δέ.

SCULPTURE

Διπαλτος.—In *BSA*. xxxvii, session 1936–37, pp. 173–186 (8 figs.), H. L. LORIMER finds that the word διπαλτος, which occurs only three times in Greek literature (Soph. *Ajax* 407; Eur. *Iph. in Taur.* 323; Eur. *Troades* 1103), means brandishing spears, swords, thunderbolts in both hands. Pausanias, v, 28, 9, says that the statue of Zeus Horkios at Olympia had a thunderbolt in each hand. Zeus with two weapons, but not two thunderbolts, occurs on at least two Greek vases, and a deity with two weapons is found in Syro-Hittite art, but a god with two thunderbolts is seen on an Assyrian relief from Nimrud, a relief found at Babylon, a lapis lazuli plaque from Babylon, a Sargonid gem, and a stele from Arslan Tash of the second half of the eighth century. Such a type might have been adopted in Greece at any time after ca. 725 B.C., but certainly not after 600 B.C. A date within the first three quarters of the seventh century for the Zeus Horkios at Olympia may be reasonably conjectured.

An Early Greek Bronze Statuette.—In *The Journal of the Walters Art Gallery* ii, 1939, pp. 24–35, DOROTHY KENT HILL discusses a small bronze figurine formerly in the Tyskiewicz Collection, now in the Walters Art Gallery at Baltimore. It is said to have been found in Boeotia together with a male statuette now in the Boston Museum of Fine Arts. Both statuettes are of solid cast bronze. The Baltimore figurine represents a woman clad in a long garment. The body

is short and sturdy and the treatment is stylized rather than lifelike. A cutting in the back near the bottom of the skirt and a worn surface on the top of the head indicate that the figurine served some purpose. This is also true of the Boston figure and of several bronze statuettes found at Brolio in Italy and very similar in style. The author suggests that such figures were probably used as supports for bronze basins. The excellence of the bronze casting in the statuettes serves as a basis for dating them. The Boston figurine shows some of the characteristics of beaten statuettes, while the Baltimore figurine is more advanced. Miss Hill believes that the former is deliberately archaistic and that both statuettes should be dated in the second half of the seventh century.

Colossal Statue at Naxos.—In *BSA*. xxxvii, session 1936–37, pp. 21–25 (4 pls.), STANLEY CASSON describes the processes by which an unfinished statue in the quarry near Apollonia, Naxos, was freed from the rock. (1) The surface of the marble rock was cleared and smoothed by quarrymen. (2) On the smooth surface the outlines of the statue must have been drawn with paint or charcoal. (3) Round this outline expert quarrymen cut into the solid rock a trench wide enough to hold a man and give him space to work. Most of the marble was presumably removed with punches and picks, but the sides of the trench were finished with carefully punched lines, so that a relatively smooth surface was attained. When the trench was completed the statue lay as a kind of silhouette in a trench which is at its deepest about 8 feet deep. (4) Next the statue was shaped with a variety of punches until head and shoulders, arms and legs, and the projecting hands and feet were clearly shaped. The greatest length of the statue is 35 feet, its greatest width 8 feet. (5) Now wedge-holes were made and wedges of wood or metal driven in until the statue was freed from the rock beneath it. This must have been a tremendous task. The wedges were driven in at a natural cleavage or striation of the rock. Finally the workmen began to move the statue down towards its destination, but at this point the work was given up. Today there are two cracks in the head and shoulders which would make the completion of the statue impossible. Perhaps they developed as the figure was freed from the rock, but the work may have been abandoned for lack of funds or for some other reason. The date of the statue—probably intended to be male and

bearded—is before 450 and may be even earlier than 500 B.C.

The Bronze Zeus from Artemisium.—To *BSA*, xxxvii, session 1936–37, a volume published in honor of Professor J. L. Myres on the occasion of his seventieth birthday, G. M. YOUNG contributes six original photographs of the bronze Zeus from Artemisium. They are reproduced in excellent half tones on five plates.

A Greek Bronze Statuette.—In *The Journal of the Walters Art Gallery* i, 1938, pp. 33–43, VALENTIN MÜLLER republishes a bronze figurine, which is in the Walters Art Gallery, Baltimore. The statuette represents a woman wearing a long, thin chiton through which the body shows clearly. In her extended right hand she holds an egg. The presence of the egg suggests that the statuette was connected with the cult of the dead. It is thought that the figurine represents a mortal woman and not a goddess, though there is no definite proof of such an interpretation. The advanced right leg with bent knee, and the absence of the archaic smile suggest a date at the close of the Archaic Period and the beginning of the transition. Analogies are found in the "Kritios Boy" from the Acropolis and in figures on vases from the decade between 490 and 480 B.C. A comparison of the style of the Baltimore figurine with those of recognized centers where such bronzes were manufactured results in the conclusion that it is a product of the "Chalcidian" school.

VASES AND PAINTING

Pottery from North Slope of Acropolis.—In *Hesperia* ix, 1940, pp. 141–260, CARL ROEBUCK catalogues under 346 heads the pottery found in the excavations on the North Slope of the Acropolis at Athens during the campaign of 1937–38. The catalogue shows that this collection is strongest in black-figured ware of the late sixth and early fifth centuries. It lists first contiguous fragments from Acropolis vases; second, non-contiguous fragments of the same; and finally, household ware. The attributions (Beazley assisting) are of some importance and interest. They include associations with the school of Makron (Catalogue nos. 4 and 272), and with Lydos (7, 107); eleven new fragments of a calyx-crater closely related to Exekias in style (8); the Pharos (10), Cerberus (13, 253), Edinburgh (62), and Theseus painters (84, 85); the Leagros group (122); Little Master cups (125–131); Droop cups (132, 153–155); the Phanyllis group (198); two new artists:

the potter Sotes and the painter Paideros (217), contemporary with Nearchos (203) and Lydos; Sakonides (218); and red-figure by Olto (260) and Epiktetos (261), as well as by the Euaion (274), Fauvel (276), Villa Giulia (281), and Amasis (294) painters. Also noteworthy are a fragment of a very early black-figured dinos, representing the Funeral Games of Pelias (1), and an ostrakon of Alkibiades the Elder (296).

Epiktetos and his Circular Designs.—In *The Journal of the Walters Art Gallery* i, 1938, pp. 24–32, DOROTHY KENT HILL discusses Epiktetos' solution of the problem of adapting a scene for use in a circular field. In addition to fine drawing and the use of especially suitable figures Epiktetos made use of three particularly characteristic devices: "The lines of his figures parallel the frame as far as possible, the parts of the bodies, with the occasional exception of a foot, never suggest an action which could not be completed within the circular space, and the feet are placed firmly on the circle in such a way that it seems to be a reasonable boundary line." In this way the figures are definitely associated with the circle. These devices are characteristically Epiktetan and are not employed by any contemporary vase-painter. Miss Hill points out, however, the existence of an amazing similarity in circular design in the works of Tleson, a painter of "little-master" cups. She suggests that Epiktetos in his early days was probably closely associated with Tleson, and that he learned the principles of circular design from the earlier master. On the basis of these Epiktetan characteristics Miss Hill assigns a cup in the Thorvaldsen Museum in Copenhagen and one in the Walters Art Gallery to the group of Epiktetos' works, though they are "school pieces," and not from the painter's own hand.

Psykter with Knuckle-Bone Handles.—In *The Journal of the Walters Art Gallery* ii, 1939, pp. 112–113, DOROTHY KENT HILL discusses briefly an Attic red-figured psykter in the Walters Art Gallery at Baltimore. Pollux describes a psykter as a vase "with *astragaliskoi*." This puzzling description is explained, since the handles on the Baltimore vase are clearly in the form of small knuckle-bones. The vase was formerly in the Massarenti Collection and was published by Hartwig (*Die Griechischen Meisterschalen*, pp. 264–267) from drawings which he found in the German Archaeological Institute in Rome. A great deal of erroneous restoration has been removed and new photographs are published here.

INSCRIPTIONS

Greek Acrophonic Numerals.—In *BSA*. xxxvii, session 1936-37, pp. 236-258, MARCUS N. TOD gives a complete list of all the places in the Greek world which have provided examples of acrophonic numerals, thus bringing up to date the information given in his previous articles on this subject. Discussion is full when necessary, but for the most part brief or omitted altogether. The places listed are 96 including Cyrene, though the Cyrenaic system was not strictly acrophonic. The Darius vase forms a 97th item.

Inscriptions from Thera.—MARGHERITA GUARDUCCI writes on the ἄγγελος inscriptions of Thera. None of the interpretations which refer them to Christianity is satisfactory. They are pagan; and ἄγγελος is somewhat similar to *Dis Manibus*, who, also, could be regarded as messengers of the lower world, as Lucretius vi, 762 ff. shows (*Studi e Materiali* xv, 1939, pp. 79-89).

ITALY

GENERAL AND MISCELLANEOUS

The Etruscans.—G. QUISPEL traces the name of the Etruscans in the Old Testament (*Jaarbericht Ex Oriente Lux* vi, 1939, pp. 170-176). It is *Tiras* in Gen. 10: 2, *Tarsis* elsewhere. This is the name of a people that "originates from Asia Minor (Gen. 10: 4), exports ores (Ezek. 27: 12), makes statues (Jer. 10: 9) and practices piracy (Ez. 38), while the trade with Tyre has become extensive (Is. 23: 1)." All that is true of the Etruscans. Linguistically the identification of *Tarsis* with the *Tyrsenoi* (Etruscans) also can be proved. The identification with *Tartessus* is rejected. *Rosh*, in Ezek. 38: 2, corresponds to *Rasenna*, another form of the name of the Etruscans. In *Vetus Latinus* Judith 2: 33 perhaps the Cimmerian invasion is alluded to.

An Umbrian Inscription.—In *HSCP*. 1939, pp. 89-93, JOSHUA WHATMOUGH publishes an inscription, found at Assisi in 1938, in excavations made for laying the foundations of the retaining wall of a terrace between the churches of San Lorenzo and San Vitale. The inscription is in Umbrian characters; previously only one Umbrian inscription was known to come from Assisi, which was never under Etruscan domination. The stone is still *in situ*, and was part of a lintel, as not only its cuttings, but its text prove. A transliteration, translation (into Latin) and commentary is given. It is dated about 250 B.C.

Acclamations of Augustus.—W. KOLBE presents a new theory about the fifteenth and the sixteenth Imperial acclamations of Augustus. He believes that the Armenian war of Gaius caused Augustus to accept the sixteenth acclamation in the year 3 A.D., whereas the fifteenth acclamation was based on the successes of M. Vinicius in Germany and took place in 1 A.D. (*Germania* xxiii, 1939, pp. 104-110).

SCULPTURE

Rock-Crystal Statuette of Herakles.—In *The Journal of the Walters Art Gallery* ii, 1939, pp. 113-117, BERTA SEGALL publishes a rock-crystal statuette of Herakles in the Walters Art Gallery at Baltimore. The god is represented as throwing the Erymanthian boar. The motif is classical, but it is rendered with an obvious barbarization. The head bears a close resemblance to a group of Roman portrait heads in porphyry which are dated about 300 A.D. There are also certain links with Egyptian art of the Roman Imperial period. Miss Segall suggests that the statuette was probably made in Egypt. Some of its features are to be found in later Coptic art, and the author believes that the Walters statuette furnishes the first definite evidence of the direct development of Coptic art from Roman Egyptian.

Roman Armaria and Imagines.—D. DIMITROV interprets two panels on a stele from Marcianopolis as the doors of a shrine which contained the image of the dead. He shows how the custom of preserving the busts of ancestors in such shrines gradually spread from Italy to the Balkan provinces (*Germania* xxiii, 1939, pp. 27-31).

Matron.—The bronze bust from Mannheim in Speyer is probably a votive offering to the native Celtic deities, the *matres*, and represents one of them (H. KLUMBACH, *Germania* xxiii, 1939, pp. 114-119).

INSCRIPTIONS

Messad (Algeria).—*Castellum Dimm*. was one of the military posts in the extreme south of the section occupied by the Romans in the province of *Mauretania Caesariensis* (E. ALBERTINI and P. MASSIERA, *REA*. xli, 1939, pp. 223-244). The name should probably be completed as *Dimmitanum* or *Dimmidense*. It was on the site of the modern village of Messad in Algeria in the mountains of Ouled Nail, a little north of latitude 34 and a little east of the longitude of the city of Algiers. Its history, known solely from archae-

ological evidence, can be sketched from the inscriptions.

The post was founded in 198 by Anicius Faustus, legate of Septimius Severus. At this time it was occupied by detachments of *legiones III Augusta, III Gallica* and by auxiliary troops of *ala I Pannoniorum* and some unidentifiable unit. In an inscription which may be of Caracalla's time the *ala Flavia* appeared. There are no inscriptions from the time of Elagabalus. In the time of Severus Alexander there is evidence of more activity. There may have been some intention of making *Castellum Dimm*, more than a military post (an epitaph of a girl of seventeen probably dates here). These soldiers stationed here in this reign are from *leg. III Aug.* and a unit known as *numerus Palmyrenorum*.

The last dated inscription is one of Maximinus and Maximus. When Gordian III dissolved *leg. III Aug.* in 238 the post was abandoned. The numerous erasures in these inscriptions following *damnationes memoriae* are particularly interesting: — the name of Geta (in the time of Caracalla), the adjective *Gal.* of *leg. III Gal.* (in the time of Elagabalus), the names of Severus Alexander and Julia Mamaea as well as the adjective *Alexandriana* of *leg. III Aug.* (in the time of Maximinus), and finally the names of Maximinus and Maximus and the adjective *Maximiniana* of *leg. III Aug.* (just before the post was abandoned). However, the name of the *leg. III Aug.* was not erased, hence the evacuation of *Castellum Dimm*, and the dissolution of the legion must have been simultaneous.

Of the 26 inscriptions from Messad, 10 are in *CIL.* viii, 8795–8803 (=18020–3); 5 have been more recently published (to one a new fragment is added); 11 are newly published by Albertini and Massiera. Of those already published in *CIL.*, two have been improved by new fragments (8797b and 8800=18023) and four by change in reading and interpretation (8795=18020=Dessau, *ILS.* 4340; 8796=18021; 8797a; 8797b). Of these inscriptions 5 are from the time of Septimius Severus, 9 from the time of Severus Alexander, 1 from the time of Maximinus, 3 are doubtful in date, 8 are too fragmentary to be assigned.

Roman Inscription.—H. NESSELHAUF corrects Birley's reading of an inscription found at Burgh-by-Sands, one of the forts of the Hadrianic Wall. He shows that the *numerus Maurorum Aurelianorum* is mentioned in the inscription; according to *Notitia Dignitatum* these Moorish troops formed

the garrison of *Aballava*. Thus Richmond's equation of Burgh and Aballava is confirmed (*Germania* xxiii, 1939, pp. 33–35).

Inscriptions from Holland.—Two new Roman inscriptions have been found at Lobith, Holland: 1. Dedication to Jupiter Optimus Maximus by a *praef. cohortis*, probably 89–96 A.D.; 2. A cenotaph of a soldier of leg. I, first half of the first century A.D. The *Moles* mentioned in this inscription is the great Rhine dam begun by Drusus and finished in 58 A.D. (J. H. HOLWERDA, *Germania* xxiii, 1939, pp. 31–33).

POTTERY

Margidunum.—In *AJ.* xx, 1940, pp. 282–285, FELIX OSWALD comments on a fragment of an Arretine crater from this site. It is suggested that this crater is from the potteries of M. Perennius Tigranes, kept in use until the time of Claudius.

Sigillata.—A bowl by the Central Gaulish potter Donnaucus is published by J. A. STANFIELD in *Germania* xxiii, 1939, pp. 110–114.

ROMAN GAUL

Ludna, Asa and Lunna.—A Roman road ran north from *Lugdunum* (Lyon) for 67 km. to *Matisco* (Mâcon). According to the *tabula Peutingeriana* the town of *Ludna* was about halfway between the two places. According to the *itinerarium Antonini* the road was cut in three equal parts by *Asa* (or *Assa Paulini*) and *Lunna*. *Ludna*, which can be identified with the modern Tournelles, has yielded a variety of archaeological objects including coins from the Gallic period to the time of Jovinus (411–412). The name is Celtic—it was a native town utilized by the Romans as a stopping place. The other two towns seem to have been founded by the Romans to shorten the distance between stopping places on this road. *Asa* is the modern Anse—a recently discovered *miliarium* of Claudius (dating ca. 42–43) is the only object found there older than the second century. This town may have existed from the time of Claudius. *Lunna* can be identified as Belleville, where Roman remains have been found. However there is some doubt about the name. It is possible that the name was confused by the cartographer with that of *Ludna*, but it is more likely that there was a close relation between the two towns and that the latter took a Latinized variation of the name of the former. *Ludna* was more of a town, whereas *Lunna* seems to have been composed of the estates of the

wealthy (P. WUILLEUMIER, *REA*, xli, 1939, pp. 245-51).

Place Names.—A. NICOLAI has summarized the work on place names of L'Agenais (*REA*, xli, 1939, pp. 252-258).

Gallo-Roman Studies.—A. GRENIER has digested and discussed important recent items on Gallo-Roman antiquities, history, etc. (*REA*, xli, 1939, pp. 258-266).

EARLY CHRISTIAN AND BYZANTINE

The Process of Tradition in Greece.—In *BSA*, xxxvii, session 1936-37, pp. 48-55, R. M. DAWKINS mentions the story told of Theseus by Bacchylides (dithyramb xvi) as an example of a legend not always transmitted in the same form; then he tells the story relating to a chapel of the Virgin near the monastery built by Justinian in honor of St. Katherine in a valley of the Sinai mountains to commemorate the place where Moses saw the burning bush. The story of the foundation of the chapel is recorded by pilgrims from the twelfth to the seventeenth century. Their versions vary greatly, but Nektarios, Patriarch of Jerusalem, in his *Ἐπιτομή τῆς Ἱεροκοσμικῆς Ἱστορίας* (1758), gives the story much as it is told today, mentioning vermin and lack of food as the reasons why the monks were leaving the monastery when they were sent back by the Virgin. The form of the story has without doubt been fixed by the book. Similarly Greek legends were fixed by the poets, notably Homer and Hesiod.

Qasr el-Heir el-Gharbi.—In *Syria* xx, 1939, pp. 195-238, DANIEL SCHLUMBERGER gives the first part of his preliminary report on the excavations at this site (including Harbaqa) from 1936 to 1938. The site, which is of Roman and Byzantine date, lies sixty kilometers west-south-west of Palmyra. The structures include a castellum, a khan, a palace, a residence, baths, a garden, a mill, and impressive water-works.

Jebel Seis.—J. SAUVAGET (*Syria* xx, 1939, pp. 239-256) describes the Umayyad ruins at Jebel Seis, which is a volcano in the desert about one hundred

kilometers east-south-east of Damascus. The ruins embrace a residence, a mosque, and baths.

MEDIAEVAL

Sutton Hoo Ship-Burial.—In *AJ.* xx, pp. 149-202, C. W. PHILLIPS reports again on this extremely important discovery. (Summaries of the accounts in *Antiquity* xiv, pp. 4 ff., appeared in *AJA.* xlv, 1940, p. 248.) The present paper discusses the ship with much more detail than the earlier one, in effect may be considered a supplement to the paper in *Antiquity*. There are four appendices: one, an inventory of the principal finds by T. D. KENDRICK; two, laboratory notes by H. J. PLENDERLEITH; three, a dendrochronological report by H. GODWIN; four, a geological report by F. E. ZEUNER. The paper is illustrated with 21 plates and 15 figures.

A Helmarshausen Manuscript.—In *The Journal of the Walters Art Gallery* i, 1938, pp. 19-23, ADOLPH GOLDSCHMIDT, Emeritus Professor of the History of Art at the University of Berlin, discusses briefly the manuscript of a German Psalter of the twelfth century in the collection of the Walters Art Gallery. Goldschmidt points out the similarities in the style of the script and in the painting of the illuminations to two manuscripts executed in Helmarshausen for Duke Henry the Lion and his wife Mathilda, and suggests that the Walters manuscript may have been made for the Duke's daughter Gertrud, possibly on the occasion of her marriage to the Crown Prince of Denmark in 1177.

Lombard Importation in Württemberg.—Starting from the gold crosses and the decorated silver tongues found recently at Derendingen near Tübingen, H. BOTT extensively surveys related pieces of the migration period and concludes that Lombard importation and influence are a major factor in the Alamannic jewelry of Württemberg (*Germania* xxiii, 1939, pp. 43-53).

Iron Bars.—H. OHLHAVER gives a list of axe-shaped iron bars of early mediaeval date found in Bohemia and compares them with Viking iron bars found in Norway (*Germania* xxiii, 1939, pp. 119-122).

NEWS ITEMS FROM ROME

Since last year's report,¹ archaeological discoveries and publications in Italy and about Italy have continued with unabated vigor and with no diminution in interest. The years 1939 and 1940 will long be remembered by reason of the appearance of such outstanding volumes as Messerschmidt's second *Band* of von Duhn's *Italische Gräberkunde*,² Andrén's treatment of the Etrusco-Italic temples and their terracotta revetments,³ the publication of the necropolis on the island near Portus by Calza,⁴ that of the ships of Nemi by Ucelli,⁵ and the revelation of portraits of such historic figures as Aristogeiton, Themistokles, Miltiades, and Marcellus, the nephew of Augustus. But these are only some of the "highlights" in a remarkably fruitful period. Again on this occasion, sincere thanks are due to the generosity with which Italian administrators have accorded information, photographs, and permission to publish: gratitude is herewith expressed to Drs. Alda Spinazzola and P. Zancani Montuoro, and Signori G. Calza, C. Carducci, A. M. Colini, R. Davico, G. Jacopi, F. Magi, A. Maiuri, M. Mirabella Roberti, G. Moretti, B. Nogara, M. Pallottino, and U. Zanotti Bianco.

Rome comes first. Last year's report opened with a brief account of the tunneling operations on the Capitoline Hill, which at that time had already reached an advanced stage. They have now been carried to a successful conclusion, the inauguration was held on the Birthday of Rome, April 21, 1940, and the results reflect the greatest credit upon all concerned. The newly revealed elements of the Tabularium (see below), and the underground passages with the podium and colossal cult statue of the temple of Veiovis, together with a massive Doric capital of early form which may well have belonged to one of the great temples of the hill; the remains of pavements and walls antedating the construction of the Tabularium; the typical examples of Domitianic brick and stone work testifying to a restoration of this quarter subsequently to the disastrous conflagrations of that period and also to the lines of the

streets as systematized after the *Asylum* had dwindled, so as to become little more than a memory: all these and much more render this area of peculiar interest. It develops that the essential structural portions of the podium of the temple of Veiovis are earlier than the construction of the Tabularium; the date of 192 B.C., which is now assigned to them should, if accepted, become a landmark in the history of construction, since not only travertine and Anio tufa—this seems to be its earliest datable appearance by about fifty years—but concrete also is here used. The superstructure of the temple was restored, and the present marble cult statue executed, under the Empire. Among the mosaic pavements of an edifice which was demolished in preparation for laying the foundations of the great record office is a specimen of the type now generally accepted as *lithostroton*: if the identification of this type of pavement is correct, and if Pliny's statement⁶ is dependable, that *lithostrota coeptare iam sub Sulla*, then it could not have been laid many years before the demolition of the building which it adorned, and which may well have suffered in the fire that destroyed the Capitoline temple in Sulla's time.⁷

Mention has been made, in previous reports, of the extensive demolitions and the excavation for new administrative buildings in the area between Capitoline and Tiber, roughly corresponding to the Forum Holitorium and the adjacent parts of the Forum Boarium. Commendatore Colini's painstaking record and study of the evidence which these operations have afforded is producing important results for topography and history. The achievement of the Censors of the year 179 B.C.⁸ can now be appraised. The familiar rectangular temple "of the Forum Boarium," which faces up-Tiber and hence away from the Forum Boarium, lay at the down-stream end of the axis of a large rectangular area, which with its appurtenances, formed the *Portus Tiberinus*. The Pons Aemilius, at right angles to this axis, and near its down-stream end, fitted into the scheme. The twin temples which have been disclosed near the Church of Sant' Omobono lie out-

¹ *AJA*. xliii, 1939, pp. 508-21.

² Heidelberg, Winter.

³ Swedish Archaeological Institute, *Skrifter*.

⁴ Rome, Libreria dello Stato.

⁵ See below.

⁶ *NH*. xxxvi, 189.

⁷ Illustrated description by Colini, not in commerce, published by the *Governatorato di Roma* for the inauguration.

⁸ Livy xl, 51.

side the rectangular area, which was devoted chiefly to warehouses and the like, but which received its religious sanction from the temple of Portunus, the Portunium, which is surely the one first mentioned, at the end of the main axis. The suggestion is obvious, that the twin temples are those of Fortuna and Mater Matuta.

The Campus Martius, also, is becoming more intelligible. This is largely due to Ingegnere Gatti's perseverance in his study of the *Forma Urbis* and the monuments upon which it throws light. He had already demonstrated that the well known fragments which had been assigned to the Saepta really represent the Porticus Aemilia and other structures, chiefly *horrea*, between Aventine and Tiber. He now shows that the true Saepta are to be placed further west than their traditional location along the Via Lata, and, in fact, that a considerable stretch of their western wall, a restoration of Imperial times, is visible adjoining the east side of the Pantheon. The familiar remains immediately to the south of the Pantheon he identifies with the Basilica of Neptune. When his important studies are published with full graphic illustrations they are, I believe, sure to carry conviction.

The remarkable series of discoveries at the Cancelleria were mentioned a year ago;⁹ and the liberality of Commendatore Bartolomeo Nogara, Director General of the Pontifical Museums and Galleries, now makes it possible to present photographs of one of the boundary-stones of the funeral area of Aulus Hirtius (fig. 1) and of two slabs from a panel of the monument of Flavian date (fig. 2) on which Domitian (if the identification is acceptable) appears, setting forth for the wars, accompanied by lictors, preceded by Victoria, Mars and Minerva, and followed by Virtus (?). The exceptional preservation and the marked stylistic qualities of these large reliefs appear clearly in the photograph. Meanwhile, Dr. Filippo Magi's painstaking researches on the spot, in circumstances of peculiar difficulty, have been steadily revealing the topographical details of this edge of the Campus Martius.

It was already known that the city of Rome was one of the most important centers of the cult of Mithras to be found in all the empire: the Mithraeum under San Clemente had long been familiar, and in recent years the remains of one were uncovered at the Circus Maximus, and the Barberini gardens disclosed another, with elaborate

⁹ *AJA.*, loc. cit., pp. 508-11.

paintings comparable to those at Capua and Dura-Europos. Now still another painted Mithraeum has been discovered, among the ancient structures lying beneath the Church of Santa Prisca on the Aventine. The paintings include representations of members of the several orders in the Mithraic hierarchy, with explanatory painted in-



FIG. 1.—CIPPUS FROM THE TOMB OF AULUS HIRTIUS

(Courtesy of Commendatore Bartolomeo Nogara)

scriptions; unfortunately, many of the painted representations and inscriptions are in a poor state of preservation.

In May, 1939, in the course of digging operations on the right bank of the Tiber about half a mile down-stream from the river port of San Paolo, at the point known as Pietra Papa, some archaeological remains came to light. The government inspector, Dr. Giulio Jacopi, at once recognized the importance of the area in question and of the results which might be derived from a systematic investigation, which was in consequence undertaken. During the following five months an imposing group of monuments was revealed. Three cippi of the Augustan delimitation of the Tiber banks were still in place: they name the consuls of the year 8 B.C. All the area lying behind the ancient river-wall was occupied by massive substructions, in rubble and reticulate, preserved at certain points to a height of from 14 to 16 feet. They are datable at the close of the Republic or

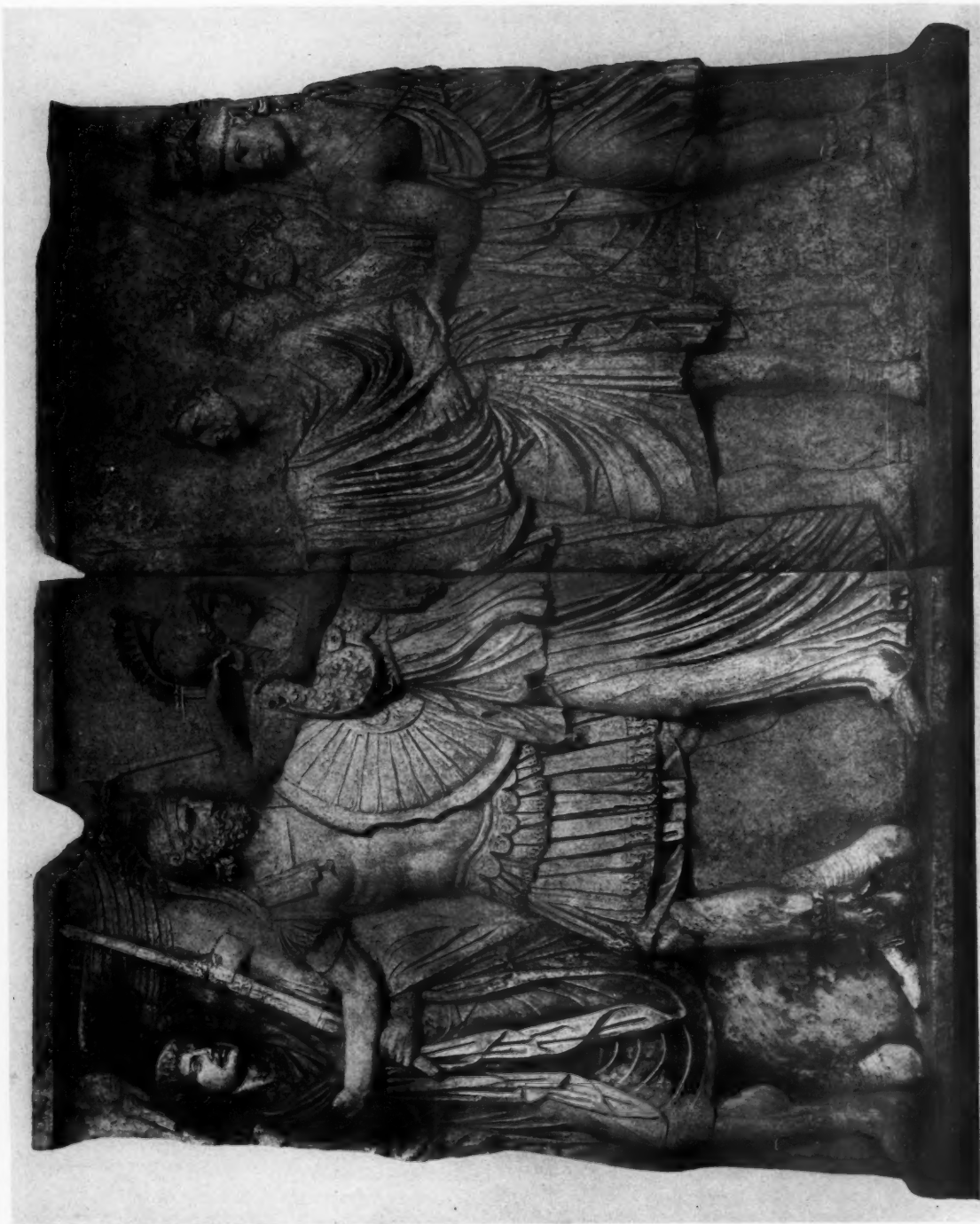


FIG. 2.—PART OF A SCULPTURED PANEL FROM THE EXCAVATIONS AT THE CANCELLERIA: DOMITIAN SETTING FORTH FOR THE WARS
(Courtesy of Commendatore Bartolomeo Nogara)

the beginning of the Empire, and probably belonged to a villa with gardens, fountains, pools and reservoirs. A long corridor showed remains of painted decoration, a red dado adorned with boughs and with figures of birds heraldically confronted on each side of a vase; above the dado was the white ground of the wall, with candelabra or other supports surmounted by small figures.

At a later period, and at a higher level, in the portion of these remains nearest to the river, a building was constructed with brick-faced walls and arrangements for heating—perhaps a bath; brick-stamps provide the date A.D. 123. Two adjacent small rooms, one of which still preserved its vault intact, were paved with a mosaic in geometric and floral designs (fig. 3), and both walls and vault were richly adorned with pictures, whether fresco or encaustic has not as yet been determined; the surfaces were originally left white, but the representations were added not many years later than the first layer of stucco, and they form the most distinguishing element in this edifice.

The background is greenish-blue. Scattered over this are sea-creatures—fish, molluscs, cephalopods, crustaceans—treated with great realism, and with skilful foreshortening and chiaroscuro. In this setting a huge dolphin appears, ridden by a small figure of Eros or Palaimon-Portunus. But the principal feature of interest consists of six little barks, richly decorated, each containing three or four nude occupants. Four of these barks appear to be normal in size and duly proportioned to their crews; but the proportions of the other two are curiously reduced. They are probably miniature craft, intended for purposes of sport and diversion. Only one has the ram and the general lines of a warship. Two bear Greek names, *Nike* and *Lakena* (*sic*). The care, and the richness of coloring, with which even the most minute details of equipment and decoration are indicated, render these representations a source of prime importance for knowledge of ancient ships and shipbuilding, as well as of metal and woodwork; it is peculiarly fortunate that they should have come to light while the installation of the museum to house the ships from the Lake of Nemi (see below) was approaching completion. A suggestion of Alexandrian influence is imparted by the figures of Isis, Serapis and another divinity that decorate one of the barks (fig. 4). One of the two rooms containing the paintings, that with its

vaulted ceiling preserved, has been transported bodily to the Museo Nazionale Romano; the paintings in the other room have been detached from the walls and likewise taken to that museum. The spot where these discoveries were made lies in or near the region of the Gardens of Caesar (many of the tomb inscriptions found here bear names of freedmen of the Julian house), and it is tempting to seek for associations both with Cleopatra and with Fors Fortuna: the Egyptian Queen was Caesar's guest in those gardens,¹⁰ and the existence of a temple of the Goddess in the neighborhood is attested. The Hadrianic date of the paintings of boats excludes any direct association between them and Cleopatra, with whom the earlier structures on the site were roughly contemporary but it is possible to quote, in reference to the animated scenes there depicted, Ovid's description¹¹ of the merry boat-rides that formed part of the June festival of the Goddess; and in fact the continuance of the excavations actually appears to have resulted in uncovering the remains of her temple, about 300 feet down-stream from the building with the paintings: a rectangular podium of rubble, still showing the impressions left by the blocks of its stone facing; and several battered remains of its marble decoration. Unfortunately the site had been already devastated by searchers for marbles with which to feed the lime-kilns.¹²

A most important contribution to the repertory of Athenian sculpture has come from the already-mentioned area near the Church of Sant' Omobono, below the Capitoline Hill, on the borders of the Forum Boarium. It consists of the greater part of a copy, considered to be in Parian marble, of the statue of Aristogeiton, part of the famous group of the Tyrannicides by Kritias and Nesiotes. A cast of the head, which was discovered some twenty years ago in the Vatican storerooms, fits this body exactly; this head had been broken off at some indeterminate date; the rejoining thus yields a convincing demonstration of the correctness of the attribution of the head to the statue. It is tempting to think that the copy of the group from which this figure survives once stood upon the Capitoline Hill and had been sent to Rome as an act of homage on the part of the Athenian State. A *graffito* representation of a bird now visi-

¹⁰ Cicero, *Att.* xv, 15, 2.

¹¹ *Fasti* vi, 773-84.

¹² Dr. Jacopi's preliminary account is to appear shortly in *BullComm.*



FIG. 3.—MOSAIC PAVEMENT AND PAINTED WALLS AT THE GARDENS OF CAESAR
(Courtesy of Dr. G. Jacopi)



FIG. 4.—DETAIL OF FIGURE 3
(Courtesy of Dr. G. Jacopi)

ble upon the upper surface of the base suggests that it had at some time been exhibited in a public place, where it was exposed to such embellishments at the hands of loiterers. The value of this replica for knowledge of Athenian art in the decade after the departure of the Persians from that city can hardly be overestimated. Enough is preserved of one arm and of the beginning of the other to testify to the correct position of those members. The execution of the newly found marble is superior to that of the replica from Hadrian's Villa, now in the Naples Museum; its affinities, stylistically considered, with a late archaic male figure represented by a herm in the Ludovisi section of the Museo Nazionale Romano are obvious; and not only in style, but in pose, it is close to the bronze God from the sea off the Artemision.

Rome is to possess still another museum: in connection with the reconstruction of the Church of Santa Rita at the Piazza Campitelli, near the Theater of Marcellus, an underground depository is to be constructed to contain the numerous miscellaneous remains now lying about in the vicinity.

In Rome, the fortunes of the ancient monuments have always been intimately associated with developments of city-planning and monumental construction; this is especially true at the present time and in the part of the city to the southeast of the Baths of Diocletian and the quarters extending from the Colosseum far out in the direction of the sea, where the preparations for the Exhibition of 1942 ("E 42") include a permanent Palace of Italian Civilization and also the permanent home of the Museum of the Roman Empire.¹² The extensive excavations involved in this connection continue to yield archaeological finds of importance; near the Abbey of Tre Fontane, these include a stretch of road-paving, probably from the Via Laurentina, two sarcophagi of Imperial date, and an inscribed and sculptured tombstone of a young boy, dating from pagan times.

The Capitoline Museums have benefited by the new subterranean passage already mentioned, and also through various rearrangements and installations. The new "Sala del Re" of the Museo Mussolini contains some outstanding sculptures from recent excavations, including the Aristo-

¹² Mrs. Strong, *JRS.* xxix, 1939, p. 166; full information concerning new streets and the Exhibition, *Architettura*, Dec. 1939.

geiton from Sant'Omobono and the splendid Domitianic slab that was found in ground belonging to the municipality of Rome, just outside the limits of the Cancelleria. The left-hand portion of the monumental inscription of Claudius from the Campus Martius,¹⁴ commemorating his British conquests, has been transferred from the gardens of the Barberini Palace to the courtyard of the Palazzo dei Conservatori.

Description may again be supplemented, or rather partly replaced, by appeal to the eye. Figs. 5 to 8 are from photographs taken after the unveiling and inauguration, on April 21, 1940, of the Tabularium at the end of the Roman Forum, with two more of its arches newly opened (see above), and the re-erected order of Gaius Sossius' Temple of Apollo, between the Theater of Marcellus and the Porticus of Octavia. They testify to the respect for the ancient monuments and the technical skill with which such delicate undertakings are being conducted. Both buildings are datable within narrow limits: the Tabularium in 78 B.C., and the Temple of Apollo, as rebuilt by Sossius—pseudoperipteral, prostyle, hexastyle, pycnostyle, on a high podium, and approached by narrow returning stairs at the flanks of the pronaos, which is deep, with three columns on each side—shortly after 34 B.C. Thus they might be expected to win acceptance as typical examples of the styles of the Sullan and pre-Augustan periods respectively. Their admirable qualities impress all beholders. The details, however, of the temple are—at least for Rome—somewhat eccentric: the shafts of the noble Corinthian columns show alternately wide and narrow flutings with broad flat arrises; the *tori* of the ornate bases suggest a series of twisted ropes; a similar rope pattern and other embellishments run above the three flat bands of the architrave; the capitals are exceptionally rich, and laurel leaves are actually introduced below their volutes—an allusion to the God here worshipped. Together with the frieze of boukrania, candelabra and laurel boughs, and the cornice with a square of nine small coffers between each pair of "reversed" modillions, these constitute variations upon the republican tradition which, on the whole, did not commend themselves to later architects, although several of them had their parallels in pre-Augustan and Augustan monuments. The delicate, low-relief treatment of the frieze appears out of place at its great height and

¹⁴ *CIL.* vi, 920 = Dessau, *ILS.* 216.



FIG. 5.—THE TABULARIUM AS NOW SYSTEMATIZED
(Courtesy of Cavaliere R. Davico)



FIG. 7



FIG. 8



FIG. 6

FIGS. 6, 7, 8.—THE TEMPLE OF APOLLO NEAR THE THEATER OF MARCELLUS, SHOWING THREE CORNER COLUMNS AND ENTABLATURE OF
STRUCTURE OF GAIUS SOSIUS, NOW RE-ERECTED
(Courtesy of Cavaliere R. Davico)

out of harmony with the other elements of the order—perhaps still another indication of a restless, experimenting age. Both frieze and architrave exhibit a most remarkable survival of the tradition of architectural revetments: flat arches of travertine were veneered with marble slabs. The order as restored is in Luna (Carrara) marble; but some corresponding pieces were executed in travertine covered with stucco, and it is probable that marble was reserved for the pronaos, travertine being used for the cella. Clearly the new, costly material, Luna marble, was not to be used too lavishly.¹⁵

The columns of still another Roman temple, that of Bellona,¹⁶ are soon to be re-erected upon their podium.

The ponderous undertaking at Ostia¹⁷ continues to yield results of the greatest interest, fully justifying the high hopes that were entertained of the recovery of a large part of this commercial and administrative city and its elements.¹⁸ Figs. 9, 10, and 11, owed to the generosity of the skilful and fortunate Director of the Excavations, Commendatore Guido Calza, show three widely different examples of the apparently inexhaustible wealth of sculpture which the place is revealing; ¹⁹ and figs. 12 and 13 give two views of the extremely important early Christian Basilica; here if anywhere the visitor may be confident of treading in the very footsteps of Saints Augustine and Monica.

Leaving the Capital and its vicinity, we start a survey of Italy beginning with the extreme North-east. Several chance finds from Istria and the neighboring Adriatic coast to its southeast will serve as reminders of the possibility of important discoveries in that corner of modern Italy, though no large-scale official excavations have been undertaken there in the course of the past year. At Fiume, in the early days of April, 1939, in digging for the foundations of a building at Piazza

Regina Elena, at a depth of about three feet below street level, and almost in direct contact with the native rock, eleven incineration graves were found, datable—by means of coins—in the first or the beginning of the second century of the Christian era. The greater part of the burials consisted of stone urns, with the equipment placed outside them, and preferably toward the north; two others, of terracotta, must have belonged to a small sepulchral edifice, of which a stretch of the outer walls has been uncovered. Among the objects may be noted several examples of *terra sigillata* of excellent fabric, several glass vessels, a few bronze objects, among them four surgical instruments, and a pair of gold earrings. This discovery is of great interest, because the deposits prove the presence of vigorous Roman culture in Tarsatica of the first century after Christ, a fact which up to now had not been established with certainty.

Near Fiume, at Zenon di Sotto (Villa del Nevoso), an incineration burial has been unearthed, containing a fine bracelet with pendants of pure silver, cm. 7.5 in diameter.

At Pola, work has been carried out in the Roman theater of the Capitolium, where excavations in the stage area have disclosed part of the *hyposkenion*, with some interesting details of the *frons scaenae*. In the vicinity the start of an inclined paved street has been discovered, which afforded access to the zone of the theater.

At the theater of Monte Zara, also, some explorations have been conducted, but without important results. A test dig in front of the arena has disclosed a paved area which must have occupied the stretch of the Via Flavia that passed before the edifice.

A series of interesting discoveries in Milan have been mentioned in former reports;²⁰ and now the Roman circus and amphitheater have been presented in two fully illustrated monographs by A. De Capitani d'Arzago and A. Calderini respectively.²¹ Several minor details of Roman Milan, now to be recorded, fill in the general picture, and each possesses some special interest of its own.

During the excavations for the construction of a

¹⁵ Colini, *Il Tempio di Apollo*, published by the Governatorato di Roma for the occasion of the inauguration; not in commerce.

¹⁶ *AJA.*, loc. cit.

¹⁷ Described on pages 511–15 of last year's report, loc. cit.

¹⁸ The cult of Hercules has been treated by G. Becatti, *BullComm.* lxvii, 1939, pp. 37–60.

¹⁹ The herm of Themistokles is identified through its inscription; published by Calza, *Le Arti* ii, 1939–40, pp. 152–61; on further types of portraiture from Ostia see Becatti, *Le Arti* ii, pp. 3–11.

²⁰ *AJA.* xli, 1937, p. 491 f.; xlii, 1938, p. 414; xliii, 1939, p. 515; see also A. Levi, *Historia* ix, 1935, pp. 74–89.

²¹ *Istituto di Studi Romani, Sezione Lombarda, Ricerche della Commissione per la Forma Urbis Mediolani* i, 1939; iii, 1940: Milan, Casa editrice Ceschina.



FIG. 10. — PORTRAIT HEAD FROM OSTIA
(Courtesy of Commendatore G. Calza)



FIG. 11. — PORTRAIT HEAD FROM OSTIA
(Courtesy of Commendatore G. Calza)



FIG. 9. — HERM OF THEMISTOKLES FROM OSTIA
(Courtesy of Commendatore G. Calza)



FIG. 12



FIG. 13

FIGS. 12-13. — EARLY CHRISTIAN BASILICA AT OSTIA. FIG. 12, VIEW ON AXIS TAKEN FROM THE ENTRANCE; FIG. 13 TAKEN FROM THE FURTHER END OF A LATERAL ROOM, PROBABLY BAPTISTERY
(Courtesy of Commendatore G. Calza)

large building between the new Corso del Littorio and the Corso Vittorio Emanuele, close to one side of the Church of San Carlo, at a depth of about 13 feet, an important group of about ten Roman wells in brick-work have been found, lying at intervals of about 50 feet apart, each of them about three feet in diameter and with its lowest circle of bricks resting upon a base of walnut



FIG. 17.—TERRACOTTA WEIGHT,
MILAN

(Courtesy of Dr. Alda Spinazzola)

wood: see plan, fig. 14. The fact that the neighboring Via Monte Napoleone follows the line of the city walls of Maximian indicates that these wells served for the storage and distribution of drinking water for the Milan of that time.

The thermal character, in the Roman period, of the region of Via Visconti, Via Tre Alberghi, and Via S. Giovanni in Conca had already been recognized from earlier discoveries. Further explorations at Via S. Giovanni in Conca²² have produced curious results, interesting for the hydraulic technique of the ancients. Here still another well has been discovered, intact, and like the one just described, of bricks with a base of wood, 16 feet below the present street level and only 110 feet away from the church which gave its name to the street. This well not only was full of terracotta tiles which had served for the

²² Cf. *AJA.* xli, 1937, p. 492; *Historia*, loc. cit., pp. 80-88.

suspensurae of the pavements in the baths, but contained a most unusual system of lead pipes inserted in a large piece of the trunk of an oak-tree (figs. 15 and 16). Between the two larger pipes, of the diameter of 10 cm., and two smaller ones, only the holes for which remain, a rectangular cavity was cut in the tree-trunk: this must have held a key for opening and closing the whole system. This interesting water-main, which the dampness of the ground preserved almost unharmed even in its wooden portions and which the insertion of the lead pipes in a tree-trunk renders unique, is now exhibited in the "Siloteca" of the Comune of Milan.

Still in modern Milan, the vicinity of the Church of San Vincenzo in Prato, near Via San Caligero, represents a suburb which sprang up outside the city walls in the fourth century. Here also abundant remains have been uncovered: a long stretch of wall, admirably constructed of large tiles resting upon a pile foundation; numerous architectural details, perhaps belonging to a basilica; and many small objects of various sorts, among them the pyramidal weight of terracotta which is illustrated in fig. 17. The stamped decoration on several of its faces is puzzling: is it meant to represent a cart or wagon, whether with two or four or six (!) wheels? Or a battering-ram on wheels? or what?

Two marble heads, which have been added to the collection at the Castello Sforzesco, are typical specimens of the artistic patrimony of Roman Milan: an early second-century bearded head (fig. 18), 25 cm. high, from Via Cosimo del Fante, near Piazza della Vetra, outside the Roman walls; and (fig. 19) an early third-century head and neck, 29 cm. high, from Via Maddalena no. 10, near the south line of the walls.

Fig. 20 shows a small group of statuettes which have been found at Bigarello, in the province of Mantova, and have been added to the splendid collection of ancient sculpture in the Ducal Palace of Mantova. They are described as of the best quality of Greek marble, but Roman copies; the prototypes are Greek of the fourth century B. C. The female statuette (a Muse?) measures 61 cm. high; the male (Asklepios?), 68 cm.

The Soprintendenza for Piedmont has made progress with the projects for clearing the city walls of Aosta and investigating the "Turriglio" at Pollenzo.²³ The excavation and restoration of the amphitheater at Libarna have now been com-

²³ *AJA.* xlii, 1938, p. 410.

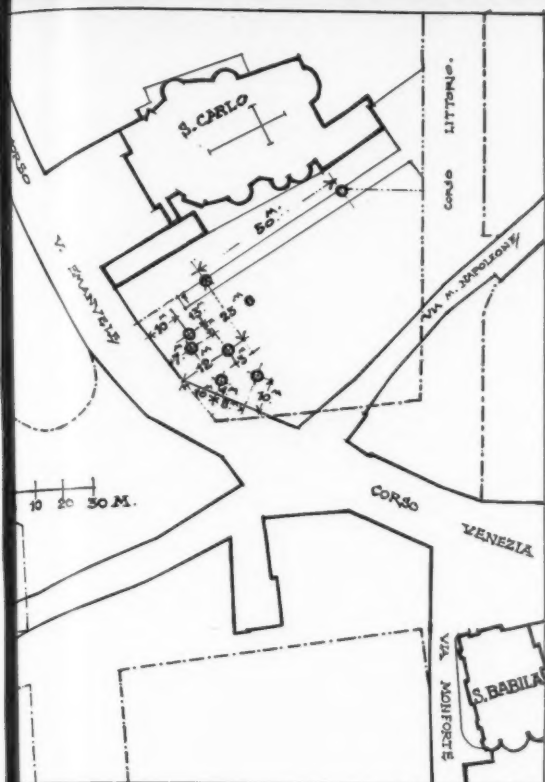


FIG. 14.—GROUP OF ROMAN WELLS IN MILAN
(Courtesy of Dr. Alda Spinazzola)



FIG. 15.—SYSTEM OF LEAD PIPES, MILAN

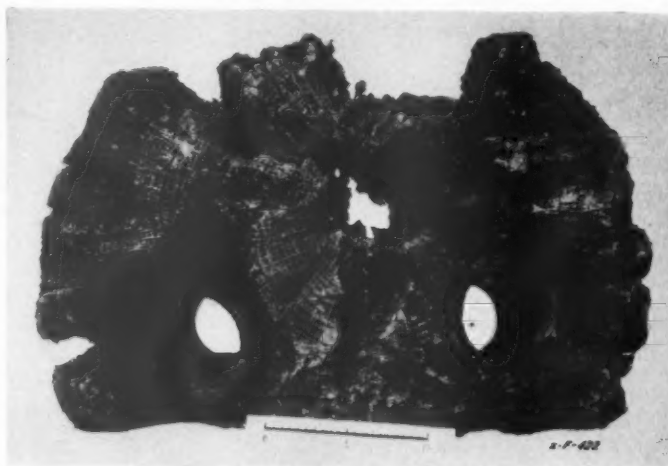


FIG. 16.—SYSTEM OF LEAD PIPES, MILAN
(Courtesy of Dr. Alda Spinazzola)



18.—MARBLE HEAD, SECOND CENTURY A.D., MILAN
(Courtesy of Dr. Alda Spinazzola)



FIG. 19.—MARBLE HEAD, THIRD CENTURY A.D.
(Courtesy of Dr. Alda Spinazzola)

pleted, with the results that appear in figs. 21 and 22.

One of the first archaeological discoveries to be reported from Meldola, near Forlì, concerns the early Byzantine period: the remains of a large and sumptuous edifice have been uncovered, with the floors of the rooms paved in a type of mosaic characteristic of the period of Theodoric at Ravenna

Veii, both in former years and in the most recent campaigns of excavation, there are a number representing Aeneas carrying Anchises. Their date is not later than the fifth century B.C. This has given occasion to Commendatore Giglioli to review the archaeological evidence (vases, coins, gems, paintings, sculpture) for the tradition: it can be traced as far back as the sixth century



FIG. 20. — MARBLE STATUETTES FROM BIGARELLO
(Courtesy of Dr. Alda Spinazzola)

and elsewhere: late classical motives treated with a fresh spirit and with some new elements added.

The contributions from Veii continue.²⁴ Fig. 23 shows the splendid terracotta female figure holding an infant, by the Master of the already famous Apollo of the Villa Giulia. The proposal to assign to it a head which was found at some distance from the body, the identification of the woman and child, and the suggestion that they were associated in a group with the Apollo, are as yet matters for discussion.

It appears that among the numerous finds of terracotta figurines which have been made at

²⁴ Last year's report, pp. 515, 518; see now M. Pallottini, *Le Arti* ii, 17-24; *StEtr.* xiii, 1939, p. 369 f.

B.C., and its occurrence at Veii, a near neighbor to Rome, is of significance. Carrying somewhat further an idea which had been in the minds of others, Commendatore Giglioli suggests that the presence of places bearing the name of *Troia* at various points in the ancient world, and likewise the term *Troiae lusus*, may have been due to the existence of a similar word meaning "sports field": like the place-name *Aineia*, it would have given a handle for tales of settlement by Trojans of the dispersion.

On April 21 the museum of the ships from the Lake of Nemi²⁵ was inaugurated: an important

²⁵ *AJA.* xxxii, 1928, p. 393 f.; xxxiii, 1929, p. 437; xxxiv, 1930, p. 384 f.; xxxv, 1931, p. 349; xxxvii, 1933, p. 505.



FIG. 21



FIG. 22

FIGS. 21 AND 22.—AMPHITHEATER AT LIBARNA
(Courtesy of Dr. C. Carducci)



FIG. 23.—TERRACOTTA FEMALE STATUE FROM VEII
(Courtesy of Dr. M. Pallottino)

event for the science of naval architecture and technology. The peculiar difficulties in the successive phases of this undertaking are obvious: first, the retrieving of the two ships by temporarily lowering the level of the lake through the use of pumps, the ancient emissary being utilized for the discharge of the water; then, the transportation of the vessels to somewhat higher ground than the normal water level; and finally, their preservation and installation, together with the remains of their equipment and the minor objects that were found in their vicinity (including the objects from previous attempts at salvage which had been exhibited in the Museo Nazionale Romano of the Capital), in a specially designed museum. All this had lasted for twelve years and had been executed with great skill; the specialist in charge, Ingegnere Guido Celli,²⁶ has reason for pride in the results achieved in what he calls²⁷ "this incomparable conquest of science and poetry," which the late Senator Corrado Ricci, (his name will always be associated with the enterprise) had already as early as the year 1930 styled²⁸ "the greatest work of recovery and exploration that was ever accomplished in matters of archaeology," at the same time describing the ships themselves as "the most marvellous relics left from antiquity." The precise technical data presented in Ingegnere Celli's book will be especially welcomed by technicians: the opportunity was unique for large-scale experiments in the preservation of water-soaked woods and metals, and in the analysis and description of such materials.

Towards the southern limit of the Latin coast, the promontory of Circeii has established its claim to a foremost rank among the spots yielding the remains of former ages of Quaternary Man.

Now for Campania and the South. His Excellency Commendatore Amedeo Maiuri's eagerly awaited definitive presentation of the results of his years of excavation at Herculaneum has not yet appeared; but his articles²⁹ on the very suggestive discovery, in an upper-story room in one of the houses of that city, *La Casa del Bicentenario*, of the impression left by a wooden cross upon the stucco of a rectangular wall-space (fig. 24), have again raised the whole question of

the presence of Christians in the buried cities of Campania before the eruption of the year 79. In publishing the great *palaestra*,³⁰ Maiuri has announced that the volume, resuming his fundamentally important series of investigations in the subsoil of Pompeii, is to appear under the auspices of the Reale Accademia d'Italia in the new series of *Monumenti Antichi*; and for the wider reading public as well as for colleagues, the second series of his *Passeggiate Campane*³¹ discloses various aspects of its gifted author's most recent activities. Meanwhile, Commendatore Della Corte has again earned the gratitude of scholars by editing a large instalment of Pompeian wall-inscriptions.³²

Also at Pompeii, Commendatore Maiuri has investigated several points of the southwest fringe of the city: especially the precinct which since its uncovering more than forty years ago has—with some diffidence—been considered to belong to Venus Pompeiana. This proves to lie upon an entirely artificial terrace; beneath it are remains of dwelling houses which presumably were demolished in order to obtain space for carrying out this ambitious scheme. The nearby "House of Championnet," which was partly excavated about the beginning of the nineteenth century, has been explored further, in connection with a project for liberating the lower slopes of the city from the masses of earth representing largely the dumps of early excavators and concealing or falsifying the true outlines of the terrain. In this process one of the most striking discoveries of recent years was made (fig. 25): a marble portrait which probably belonged originally not to the house among the ruins of which it was found, but to the "precinct of Venus Pompeiana" on the higher ground adjacent. It consists of the head and the drapery at the back of the head which were made separately and then applied to a marble statue; except for the loss of color, the preservation of the surface is almost perfect. A young man is represented, "*capite velato*" as a priest sacrificing; the art is Augustan, the facial resemblance to Octavia is striking, the features are emaciated, the influence of a death-mask, or at least of observation of the individual after death, is unmistakable. The identification as Marcellus, the nephew of Augustus, carries conviction.³³

²⁶ *Le Navi di Nemi*, Rome, Libreria dello Stato, 1940.

²⁷ P. 292.

²⁸ P. xv.

²⁹ *Accademia Pontificia, Rendiconti* xv, 1939, pp. 193-218; *Le Arti* ii, Febr.-March 1940, pp. 187-92.

³⁰ NS. 1939, pp. 165-238.

³¹ Milan, Hoepli.

³² NS. 1939, pp. 239-327.

³³ Maiuri, *Le Arti* ii, pp. 146-51.

The results of earlier campaigns at the Heraion of Lucania, near the mouth of the river Silarus and in the sphere of influence of Paestum, have already been presented.³⁴ The short campaign of the Spring in 1939 was conducted, like its predecessors, by Drs. P. Zancani Montuoro and U. Zanotti Bianco, but was handicapped by bad

great beard, leaning in an almost ecstatic posture; with his left hand he is playing a large eight-stringed lyre, his right clasps the plektron. Subject, attitude of the lyre-player, style, and technique, all suggest that the vase proceeds from the establishment of Brygos; and in the opinion of the excavators the decoration was



FIG. 24.—THE CROSS OF HERCULANEUM
(Courtesy of His Excellency Commendatore A. Maiuri)

weather. The necropolis about the so-called "pottery" was explored, and many fine fragments of black-figured vases were found, including the neck of an enormous krater, about 50 cm. in diameter, with two superposed bands of figures; also red-figured ware. Among these latter vases there are the remains of a large one in the severe style; a fine fragment represents a male figure seated, with the head, characterized by a

³⁴ *AJA.* xl, 1936, pp. 185-7; xlii, 1938, pp. 441-4; *NS.* 1937, 206-354.

without doubt executed by the Brygos Painter.³⁵

Far richer results were obtained in the campaign of the winter of 1939-40, which was devoted to a zone about 400 meters to the southeast of the larger of the two temples, where the presence of archaeological remains had been recognized for some time. Excavation has now revealed an architectural group in which three periods can be distinguished; it lies without the sacred enclosure, to judge by the discovery of some inciner-

³⁵ *JHS.* lix, 1939, pp. 225-8.



FIG. 25.—MARBLE PORTRAIT HEAD OF MARCELLUS FROM POMPEII
(Courtesy of His Excellency Commendatore A. Maiuri)

ation graves. The central and principal nucleus (consisting of a building measuring 8.50 by 6.64 meters, with a projecting portion or platform to its west, datable in the fourth century B.C. and with its walls preserved to an average height of 1.30 m.), appeared to have been constructed at the expense of older edifices, i. e. with blocks of sandstone coming from the carved decoration of the archaic temples; these edifices had been ruined owing to the devastation of the sanctuary which was probably caused by the inroad of Alexander the Molossian, ca. 332 B.C. The excavators undertook a systematic record of the individual blocks and a survey of the building as a whole. For this purpose they proceeded to dismantle the walls, and this undertaking is still in progress. The materials that were reused in the platform and the walls include a large number of cornice blocks with two different types of moulding, several of which are in an excellent state of preservation; eighteen metopes with figures in relief, belonging to the Doric frieze of the archaic *thesauros* (twelve of these have the triglyphs carved out of the same block, whereas four were worked separately); moreover, three triglyphs belonging to the same frieze; and finally, two sculptured metopes belonging to the larger temple, of about 500 B.C. With the exception of a few which are damaged, and several in which the protruding portions of the relief have been more or less extensively eliminated in order to adapt them to their new purpose, the sculptured representations may be said to be complete; some are in fact admirably preserved, and exhibit even in the finest details the very special forms of this art, which before had not been known: its qualities have been thus summed up by the excavators:

"Thanks to these discoveries a new school of sculpture has been fully revealed, of a very high artistic level; its activity started in the first half of the sixth century B.C. on the banks of the Silarus, and underwent there a flourishing development, which it is possible to follow for more than a century by means of the individual works: a most interesting evolution, in which the contributions of the successive heterogeneous waves of influence can be recognized beside the persistence of the typical original characteristics." The revelation, in other terms, of a specific style, which from the moment of its first appearance shows clear indications of having been formed at an early period, in the fact that it already possesses its own precise canons, which presuppose the

assimilation of diverse elements; so that the excavators, following the literary tradition, consider that this art had its origin at Sybaris. Before the finding of this rich series of metopes, no document had revealed the existence of a great archaic art in Southern Italy.

"The frieze of the more archaic *thesauros*, which may be considered almost complete (of the original 36 metopes, there are now 32, together with their triglyphs, besides two large fragments and many smaller bits), yields a group which is without precedent and constitutes the most un hoped-for documentation of the systems of composition followed by the archaic artists and of their treatment of the most ancient repertory of myths: the Trojan cycle, the Labors of Herakles, the Centauromachy, etc. Finally, the four metopes of the larger temple, together with fragments, and a portion of a pediment, are authentic masterpieces of more mature archaic art."

In order to house the rich material from the various campaigns at the Heraion of the Silarus, the Italian Government has decided to construct a special museum at Paestum. When this has been completed, the exhibit within its walls will rival in interest the noble series of temples still standing in the open air, and Paestum will present additional claims to very distinguished rank among places of pilgrimage for all lovers of antiquity and of the arts.

Definite news from Epizephyrian Locri is always especially welcome, by reason of the historical and artistic significance of that city and the scanty knowledge hitherto available concerning its monuments in their topographical setting, apart from the temples and the sanctuary of Persephone, and the cemeteries. The daily press now reports the finding of a rich hoard of terracotta ex-votos of the fourth and third centuries B.C., figures of Nymphs and Nereids, statuettes of Pan enthroned, and a small shrine in the form of a grotto, testifying to a hitherto unknown local cult of Pan and the Nymphs. The excavations, which are being conducted by the regional Soprintendenza, are to be continued.

The discovery of the remains of a city of the seventh century B.C. is reported from the Contrada Mastrodalfa, near Bisignano (Magna Graecia, Prov. of Cosenza, in the interior, and to the north of Cosenza itself). A more official report will be awaited with interest.

The cumulative effect of the mass of fresh material recorded in these pages is a clearer and more



FIG. 26.—THE NEWLY ARRANGED "SALA DEL RE" OF THE MUSEO MUSSOLINI. TO THE LEFT, THE ARISTOGEITON;
NEXT TO IT, THE RELIEF FROM THE CANCELLERIA
(Courtesy of Commendatore A. M. Colini)



FIG. 27.—ANOTHER VIEW OF THE "SALA DEL RE"
(Courtesy of Commendatore A. M. Colini)

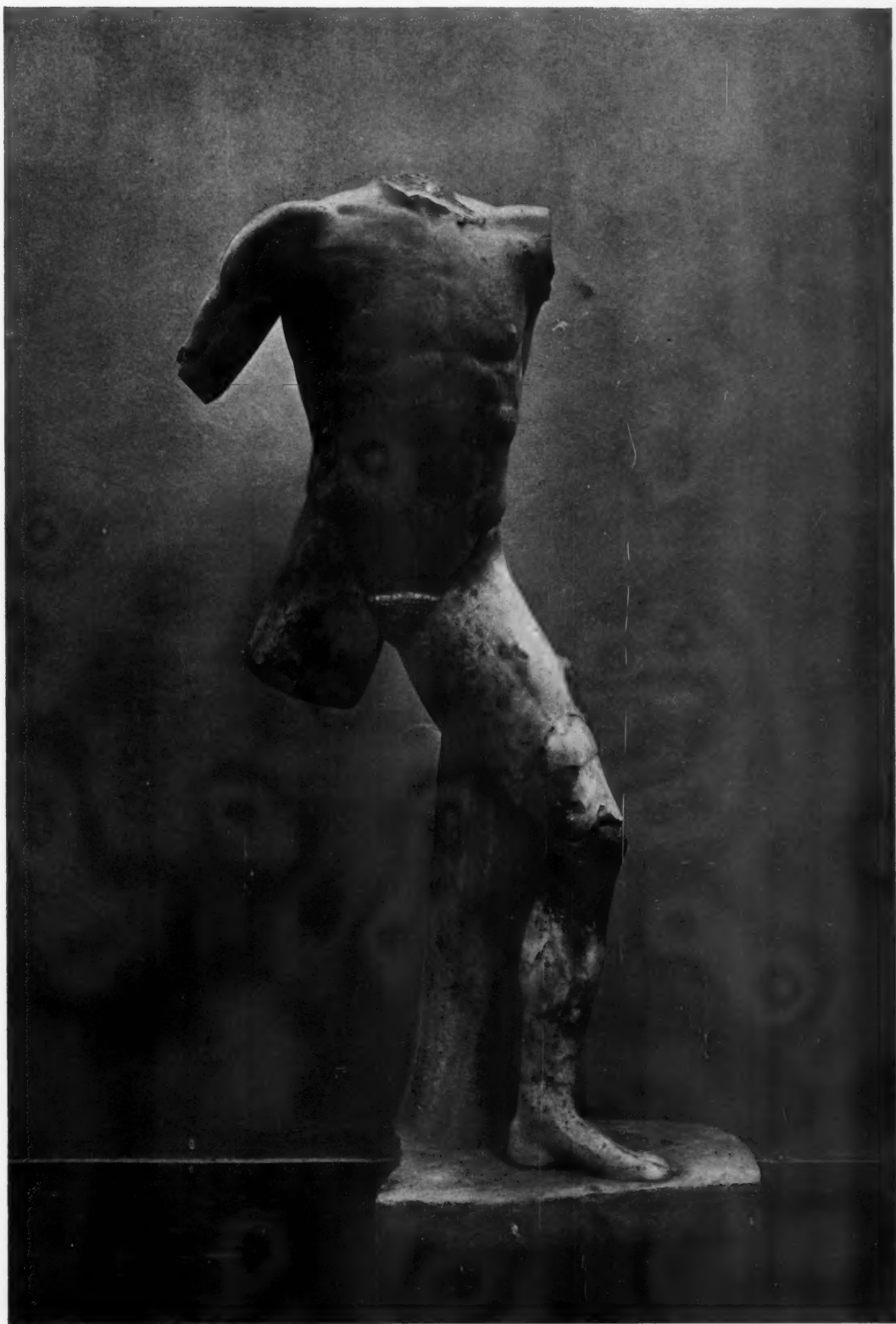


FIG. 28. — MARBLE REPLICA OF THE ARISTOGEITON
(Courtesy of Commendatore A. M. Colini)

vivid picture of the Roman Empire in its aesthetic and cultural aspects; for it is becoming increasingly evident that it possessed both a culture and an aesthetic of its own which are capable of formulation and appreciation. These are essentially different from the aristocratic and individualistic refinement of the great days of the Hellenic communities: the necropolis of Portus, for instance, and the houses of Herculaneum reveal the mentality of the average man; but they also reveal the function of Rome as the melting-pot of previously existing races and cultures. The pictorial urge appears stronger than the sculptural, until the development of fresh tendencies in the late third century. On all that it received, the imperial city and rule set its own stamp. It is in this sense that the ships at Nemi can rightly be claimed as achievements of Rome, though they incorporate the results of generations of experiment on the part of Greeks and others; and that the population that found its last resting-place in the graves of the island may be considered as Roman, although the inscriptions reveal the motley racial affiliations of a large proportion of its members. And certain periods, such as the second and early third centuries of our era in wall-

painting, have been rescued from oblivion and appear in their true character. A revision of traditional generalizations is not only timely but obligatory.

Meanwhile, there has been no lack of reminders of the heroic figures of Greek history: for, in addition to the Aristogeiton and Themistokles above mentioned, Miltiades has appeared, in the form of an inscribed herm, which with other marbles, was found in the Adriatic near one of the mouths of the Po.²⁸

LATER. The unfailing generosity of Commendatore Colini now makes it possible to show photographs of the new "Sala del Re" in the Museo Mussolini (figs. 26, 27) and the statue of Aristogeiton, which is one of its noblest adornments (fig. 28).

A. W. VAN BUREN

AMERICAN ACADEMY IN ROME,

May 16, 1940.

²⁸ These marbles represent a collection of antiques which had been formed in the Renaissance and was lost through the foundering of the ship in which they were being transported; they have now been retrieved, and installed in the museum in Ferrara.

BOOK REVIEWS

THE DEVELOPMENT OF THE EGYPTIAN TOMB DOWN TO THE ACCESSION OF CHEOPS, by *George Andrew Reisner*. Pp. xxvii+428, figs. in text 192, maps 2. Cambridge, Harvard University Press, 1936. \$20.00.

In happier times, one would hail this book of Dr. Reisner's as especially useful in field work, containing as it does an exposition of what the veteran excavator knows to a certainty, or thinks probable, of architectural forms in Egyptian tombs antedating the Great Pyramid at Giza. So many plans and sections from earlier publications are repeated in its pages that different types of tombs are abundantly illustrated; and some new material, recorded in notes that had been placed at the author's disposal, is added; in the text the available dimensions and forms are analyzed in much detail, not evading repetition. A field library must necessarily be limited, and the excavator's moments to utilize such a library when in the midst of a campaign, too, are limited. Dr. Reisner's recent book is no light manual, but in comparison with the mass of records and technical discussions on which it draws can be a great time-saver—also at home, for students of field practices and their results.

The union of Upper and Lower Egypt under Menes, Dr. Reisner places earlier than would many scholars today, that is, between 3500 B.C. and 3900 B.C. (p. 369). But the continuity of development from an open pit, with contracted body inadequately protected, down through the successive improvements made possible by the invention and use of crude brick and the acquisition of methods for quarrying stone and building with it seems to him vastly more significant than any question of absolute dates. He grasps advancing civilization as a whole which was helped on by better tools of metal and ever increasing wealth of the ruling classes. The layout of cemeteries was determined by local topography. The forms of tombs were conditioned largely by the character of the desert foothills, whether of exposed hard rock or of gravel; thus one development is traced for the Memphite cemeteries, another for those of Upper Egypt. In every Egyptian tomb two parts were essential: a substructure, so-called because usually below the ancient surface, and a superstructure for the protection of the body in the

lower part and for rites in behalf of the deceased; equipment to be used in the next life was variously divided between the two. On account of the greater vulnerability of the superstructure and consequent loss of evidence, Dr. Reisner's classification into types is established on the forms of substructures; and these he follows in the royal tomb, which presently was differentiated from the private tomb, the large private tomb of the well-to-do, and the small tomb of the poor to which improvement came most slowly. He does not, however, ignore the superstructure, but wrests from meager data opinions which will long be of value and perhaps be now confirmed, now corrected, by Walter B. Emery's penetrating investigations in the archaic cemetery at North Saqqarah. Dr. Reisner regards as the earliest royal superstructure preserved the layer pyramid at Zawiyet-el-Aryan which he himself excavated and in 1911 thought to be of Dynasty III but now assigns to Dynasty II; at Abydos, royal superstructures of Dynasties I and II are no longer extant even in part; Dr. Reisner suggests that they may have been mastabas of crude brick without continuous paneling, their bases approaching more or less closely a square in plan (map i). In this connection the tomb of an unknown Nebetka is of special concern; it is pronounced by Mr. Emery "From an architectural point of view . . . by far the most interesting example of First-Dynasty building yet discovered." There, at Saqqarah, so an initial report indicates (*JEA*, 24, 1938, p. 243), a mastaba with paneling of palace-façade type on all sides superseded an original oblong step-pyramid covering subterranean burial and storage chambers; and this change apparently took place in the time of the original builder who may, or may not, have been of the family of King Wedymuw, though assuredly of his reign.

Owners of the book under review may like to annotate it with these new disclosures as they are brought out. Thus the statement (p. 108) limiting the number of subsidiary cemeteries known from Dynasty I to eleven at Abydos and one at Giza is now to be modified by the discovery of others at Saqqarah including graves of pet animals and their keeper (*Chronique d'Égypte*, Jan. 1939, p. 79). At the tomb of Ankhka (*FS* 3036, p. 65), a trench for growing trees has been

found (*JEA. loc. cit.*), etc. As well as helping elsewhere, William Stevenson Smith has contributed to the book Appendix C and map ii, the latter dependent on hitherto published and unpublished sources critically gone over by him on the terrain; some needed addenda, such as the inscribed corner block in the Metropolitan Museum of Art from the tomb of Mery (p. 397) are familiar to him now.

Finally, the reviewer would draw attention to Dr. Reisner's discussion of the orientation of burials (pp. 11-12) and his rejection of the idea that religious symbolism influenced the eventual adoption of the true pyramid as the form of the royal superstructure (p. 340). The square base he believes was to give equal protection to the burial chamber on all four sides. The entrance passage being "the weakest part of the defence" was better concealed and less readily attacked under a smooth facing extending from base to summit than it could be in any stepped construction.

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DER EINFLUSS DER MILITÄRFÜHRER IN DER 18. ÄGYPTISCHEN DYNASTIE, by *Hans-Wolfgang Helck*. Untersuchungen zur Geschichte und Altertumskunde Ägyptens, Band XIV. Pp. viii+87. Leipzig, J. C. Hinrichs Verlag, 1939. RM 24.

This study deals with the gradual shift of power from civilian to military hands during the eighteenth dynasty of Egypt—a shift which took definite form only when bureaucracy and priesthood united against Ikhnaton's religious movement and forced him to dependence upon his troops. Ikhnaton's lack of male heirs was, naturally, a further factor which opened the kingship to military leaders—Eye, Harmhab, and Ramses I, the last of whom founded the nineteenth dynasty. In tracing the background of this change the author follows the careers open to two military groups: administrators at home, who belonged primarily to the aristocratic civilian official class, and commanders in the field, who were as a rule of rather humble origin. His bibliographies of such outstanding characters as Senmut, Amenhotep son of Hapu, and Harmhab and his lists of officials who held certain offices are very helpful. The functional interpretation of the many titles, civil and military, dealt with is, of course, vital in Dr. Helck's presentation. Though he may sometimes

stretch scanty evidence too far or impute to the ancient Egyptians a methodicalness which only a German could attain, his book contributes definitely to a better understanding of the organization of the Egyptian Empire.

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THE TELL EL-AMARNA TABLETS, edited by *Samuel A. B. Mercer*. Pp. xxiv+909, 2 pls., 1 map, in 2 vols. Toronto, The Macmillan Company of Canada Limited, 1939. \$17.50.

The discovery of an archive of inscribed clay tablets, made at El-Amarna in Egypt in 1887, was the first in a series of equally spectacular discoveries which have enabled scholars during the last half century to reconstruct the history of the second millennium B.C. The so-called Amarna age is a crucial period within this epoch, a period when great powers, Egypt, the Hittite Empire, Assyria and Babylonia, struggled for hegemony in Hither Asia.

The Amarna tablets consist of the remnants of the archives of the Pharaoh Amenophis IV, better known as Ikhnaton, and comprise diplomatic notes and dispatches exchanged between Egypt on the one hand and the great powers and Egyptian vassals in Palestine and Syria on the other. Their value for political and cultural history, for ethnography and linguistics, can hardly be overestimated.

After a period of editing and patient research the first comprehensive edition of the material was made by the Norwegian orientalist, J. A. Knudtzon, between 1907 and 1914; it was published in German. Mercer's new edition is the first to appear in English. It pretends to carry on Knudtzon's work and to bring it up-to-date. In the last 25 years the Amarna tablets have been studied and restudied, a number of new tablets have been added to the old stock, and, moreover, various other discoveries, e.g. those made at Boğazköy, at Nuzu, at Ras Shamra, at Mishrife and at Ta'annek, have vastly increased our knowledge of the multifarious problems which the Amarna age presents to science. Add the progress made in the linguistic understanding and the philological interpretation of the material, and it will be evident to everyone that a new edition of the Amarna tablets is highly desirable.

I have the greatest admiration for the enthusiasm with which Mercer has tackled the problem, and the sacrifices which generous men have made

for a great cause are highly commendable. This makes it an all the more disagreeable duty for a reviewer to state that the work with which he finds himself confronted is not up to the standards of science. This harsh judgment needs justification.

The transliteration follows Knudtzon's methods (with the exclusion of the improvements which K. himself would have made (see pp. 979 ff. of *Die El-Amarna-Tafeln*) if he had re-edited the tablets), i.e. it avoids any linguistic interpretation by utilizing the so-called common values of the cuneiform signs patterned after Neo-Assyrian usage. This amounts to a strange mixture of mechanical transposition and anachronistic interpretation which, to my feeling, is nowadays indefensible. Application of Thureau-Dangin's system of sign-values should have been imperative. Objections must also be raised against the omission of the lines which separate the various sections of many texts. These lines form part of the texts and must be taken into consideration by the interpreter who would be grateful for any information concerning the logical structure of the texts that he can obtain.

The restoration of broken lines and the translation follows Knudtzon much too closely. This fact shows a lack of constructive imagination on the part of the author. I cannot go into details here, but I should like to quote the opinion of the eminent historian, Eduard Meyer, who says in a footnote of his *Geschichte des Altertums* (ii, 1, 1928, p. 335) with regard to Knudtzon's edition: "vielfach sind die Übersetzungen und Ergänzungen . . . trotz allen Scharfsinns nur geraten und nicht selten sprachlich und sachlich unmöglich."

The notes offered instead of a commentary are rather poor. They display, despite an industrious search made in the literature, an astonishing lack of background. In these circumstances the excursions which have been added become a gruesome joke. This is particularly true as far as the Hittites are concerned; what Mercer has to say about them was not up-to-date even in 1920. Boğazköy is a myth to the author; Nuzu is not even mentioned; some information on Ras Shamra has reached him. How in 1939 Amarna tablets can be authoritatively interpreted without mastering all this material, and without a thorough knowledge of their languages cannot be understood.

The progress over and against Knudtzon could have been considerable; in fact, it is infinitesimal. Thus the merit of Mercer's new edition is ex-

hausted by the fact that it presents source material of the first magnitude for the first time in an English translation. In spite of its serious deficiencies the edition may nevertheless help to win new friends to Oriental studies.

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MANUEL d'ARCHÉOLOGIE BIBLIQUE, Tome I, by A. G. Barrois, O.P. Pp. 521, 199 figs., and folding map. Paris, Éditions Auguste Picard, 1939. 85 fr.

Good handbooks which present a synthesis of Palestinian archaeological work are very rare. Two important works, however, are now available. The first is that of Watzinger, *Denkmäler Palästinas* (2 vols., 1933-5). The second is the work before us, finished in 1938. Father Barrois was trained in the Dominican École Biblique in Jerusalem under the well known master of the subject, Père H. Vincent, and he has recently become a member of the faculty of the Catholic University of America. Each chapter of his book demonstrates his competence to handle the material. The first volume is restricted to Palestinian archaeology with frequent reference to the literary sources. Subjects treated include chapters on nomadic life, cities, architectural technique, fortifications, dwellings, city planning, rural activity, artifacts, textile industry, and the decorative arts. Very little which is essential to these subjects has been missed, since the author possesses a thorough knowledge of the primary sources.

It would be very difficult for anyone to present a manual of this sort, however, without exposing himself to criticism in one field or another, since the material surveyed is so extensive. It seems to me that the work before us suffers two serious limitations. The first is a decided tendency to be exceedingly vague about matters of chronology. In fact, this tendency to haziness is actually defended with statements to the effect that exactness in dating is not only a practical impossibility, but of secondary importance, possessing "anecdotal value" only (pp. 9-15). Thus it is deemed sufficient to refer a certain building or object to "Bronze I" (before 2000 B.C.), or "Fer I" (1200-600 B.C.), etc. This in itself would not be serious in a manual of this sort were it not for the fact that it is symptomatic of a decided tendency on the part of the École Biblique to minimize the importance of all attempts at furthering ceramic subdivision and chronological exactitude. Thus

Albright's stratification and chronology of Tell Beit Mirsim are considered an "alphabetical dissection," too complex to apply to the rest of Palestine (157, n.1, and *RB.* 48, pp. 468 ff.). Thus, too, my attempt to set in order the cultures of the third and fourth millennia in Palestine is colorfully labelled a "ceramic vivisection" (*ibid.*, p. 109), whereas later excavations and all stratigraphical indications point to the approximate accuracy of both. In fact, two schools of ceramic opinion have been rapidly forming in recent years among Palestinian archaeologists. The one, headed by Père Vincent, with its emphasis on typology, considering the tenacity of some types and the quick disappearance of others, regional differences and cultural "lag," regards the careful subdivision of periods as a practical impossibility. The other, headed by Albright, with its emphasis on the combined use of stratigraphy and typology, is no longer content with "ceramic guesswork," but is interested in reducing the experts' opinion regarding the date of an object to an objectively verifiable fact. The ideal of this school is to be able to date a sufficient quantity of types from a homogeneous locus within a century, a half-century, or even a quarter-century, if possible. This, of course, is the method and ideal of almost all archaeologists of the younger school. This group is no longer content to be told that a certain building belongs to "Fer I" (1200-600). So great have been the strides within the last two decades in the direction of more precise dating that an archaeological history is not entirely satisfying which leaves one in pre-1920 chronological vacuity.

The second limitation is too much dependence upon the École Biblique with too little reference to the archaeological critiques of other European and American scholars. Thus, for example, we find acceptance of Vincent's long out-moded dating of the Ghassulian culture (pp. 63, 247 ff., 358, 489). Consequently, the discussions of prehistoric Palestine are vitiated by a certain theory which has become a bed of Procrustes. Two cultures are thought to have existed side by side in Palestine for some fifteen hundred years without influencing each other in the least, whereas stratified series from Jericho, Megiddo, Beth-shan, and Affuleh have definitely proved that the Ghassulian is a fourth-millennium culture.

Other points with which the reviewer finds himself in disagreement may be quickly enumerated. The dating of the series of temples at Beth-shan must be lowered between one and two centuries

(cf. pp. 161 ff. and *AASOR.* xvii, pp. 76 f.). The same is to be said for the work of the Ajjul painter (pp. 425 ff. and 508; cf. Heurtley, *QDAP.* viii, pp. 21 ff.), and the stratification of Tell el-'Ajjul (cf. Albright, *AJSL.* lv, pp. 337 ff.). Père Vincent's reconstruction of the fortress at Tell el-Hesi is unconvincing in view of parallels at Beth-shan and Beth-shemesh (cf. fig. 39 with fig. 52 left and *Ain Shems* v, p. 37). The theory that sub-Mycenaean pottery in Palestine is not Philistine is most unconvincing in view of the overwhelming evidence to the contrary (cf. pp. 448 ff. with *AJA.* xliii, p. 459 n. 2 and references there given). The date of the introduction of iron into common use is placed four centuries too late (eighth century instead of twelfth) and the treatment of that subject would have benefited by closer attention to the chronology of stratified sites (cf. p. 14, n. 1 and pp. 370 ff. with *AJA.* xliii, pp. 458 ff.). The iron furnaces of Gerar are dated between the twelfth and tenth centuries (p. 373), whereas they are more probably tenth to eighth centuries (cf. *AJA. loc. cit.*). A jug, apparently of the twelfth-eleventh century, is given as an illustration of the pottery of "Bronze III" (1600-1200): fig. 163: 8; cf. *Ain Shems* iv, pl. LX: 18). A jug characteristic of the ninth-seventh centuries is illustrated as an example of the pottery of the Persian period ("Fer II"), where it is rare, if it appears at all (fig. 171: 2). Certain sealings of the Persian period are still read *YHW* (for the name of the Hebrew deity), whereas it was pointed out several years ago by Sukenik that they are probably to be read *YHD* ("Yehud" or "Judah"): cf. *JPOS.* xiv, pp. 178 ff. It would be more accurate to say that Beth-zur was destroyed and abandoned about 100 B.C., and not "in the first centuries of the Christian era" (p. 73; see Sellers, *The Citadel of Beth-zur*, p. 13 and *BASOR.* 43, p. 12).

It is far easier to find points of disagreement in a manual of this sort, however, than it is to produce it. In spite of the above criticisms this work is fundamental, and in most respects it is the best in its field.

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TELEILÂT GHASSÛL II. COMPTE RENDU DES
FOUILLES DE L'INSTITUT BIBLIQUE PONTIFICAL
1932-1936, by Robert Koeppel, S.J., avec la
collaboration de H. Senes, S.J., J. W. Murphy,
S.J., et G. S. Mahan, S.J. Pp. viii+140; frontis-

piece, figs. 6, pls. 113, plan 1. Rome, Institut Biblique Pontifical, 1940. 195 lire.

This second volume on the excavations at Teleilat Ghassul is much more limited in scope than the first, but this very restriction is of great value. Whereas in the first volume no distinction was made between the materials of the different layers, one layer only is dealt with in this volume, so that the foundation for a study of the development is laid. The authors, however, refrain from such a study and confine themselves to the publication of the material. Within these limits the publication is of a high standard; it is detailed, accurate and competent; the illustrations are abundant, only a few miscellaneous objects being omitted.

The material comes from the uppermost layer, namely IV, of Tell 3. The houses are "broad" rooms, as some sills prove. In regard to hearth, silos and wall paintings, no important new discoveries were made. Two phases can be distinguished in the pottery and in the stone industry. The ware of the uppermost level (B) is mostly red, with grits well blended, while the brown and buff ware prevails in A. The technique improves with time. The baking is better in the upper level; wheelmade specimens are not numerous in either layer, but fewer in the lower one; the number and variety of types of rims increases toward the top; there are no ring-base vessels and only a few spouted ones in A; most horn-shaped cups come from A and seem to belong to a sanctuary; as to decoration, incision and painted bands prevail in the lower level; raised bands of impressions and slip decoration in the upper; two plastic gazelles below the rim of the interior of one pot are of interest.

The types of stone tools are the same as those found in the earlier campaigns, except that long heavy chisels and gouges and long sickle blades were missing. No evolution between layers A and B was traceable, the only difference being the greater abundance in the lower level. Two mace-heads were found in A, one spherical, the other discoidal in shape. The meaning of a sentence on p. 8 f. seems to be that the author now thinks that two bronze axes published in vol. i, p. 75, pl. 34, are intrusive, and were lost by some casual later visitor. This would be a very important fact; a real settlement of the site after period IV B is excluded by the evidence. The author is inclined to accept a date early in the fourth millennium, but wants to wait for further progress in Palestinian

archaeology before he gives his final judgment. It is impossible to contribute to this study within the limits of this review; the only remark the reviewer wants to make is that a jar with handles from Jericho IX seems to him certainly less developed than some from Ghassul (on pl. 78), but sufficiently similar to exclude too long a gap of time between them (cf. G. Ernest Wright, *The Pottery of Palestine from the Earliest Times to the End of the Early Bronze Age*, p. 9). He hopes that the results of subsequent campaigns will be published soon, and in the same manner, because they would promote our knowledge of this early culture considerably.

VALENTIN MÜLLER

BRYN MAWR COLLEGE

AIN SHEMS EXCAVATIONS, *Parts I-V*, Haverford, 1931-1939. *Part I*, by Elihu Grant, 1931, pp. ii+84, figs. in text 6, pls. XXVIII, maps 2; *Part II*, by Elihu Grant, 1932, pp. 90, pls. XXIX-LI; *Part III*, *Rumeileh*, by Elihu Grant, 1934, pp. ix+99, figs. in text 6, pls. XXXII, color plates A-C, maps VI; *Part IV (Pottery)*, by Elihu Grant and G. Ernest Wright, 1938, pls. LXX; *Part V (Text)*, by Elihu Grant and G. Ernest Wright, 1939, pp. vii+172, figs. in text 11, color plates II.

Five handsome volumes contain results of the excavations of the Haverford expedition to Ain Shems, the Biblical Beth Shemesh. The first three volumes contain preliminary reports, following closely upon the excavations; the definitive publication starts with *Part IV*, a volume of plates to accompany the text of *Part V*. There is more to come.

The first three volumes consist mainly of registers of objects which are listed according to the places where they were found. With the aid of these, patient students will be able to determine with some exactitude where the several objects were found. The less patient will probably find the fourth and subsequent volumes sufficient for ordinary purposes.

Ain Shems is a typical Palestinian site of the period from the end of the Early Bronze Age to the sixth century B.C. There are, in addition, confused remains without clear building levels from late classical to Islamic times. Much the richest and most instructive phase is that of the Late Bronze and Early Iron Ages. There is a fine collection of Philistine pottery.

The material has been carefully studied and

compared to that of other sites, in Palestine and abroad. The chronology is largely dependent upon that established by Albright in his Tell Beit Mirsim reports, with notation of the differences in the length of the comparable strata at the two sites. Thus stratum IV at Ain Shems lasted somewhat later than period C at Tell Beit Mirsim, perhaps into period B₁ of the latter site. There is some evidence for a pre-Philistine stage of the Early Iron Age, though this is less clear at Ain Shems than at Tell Beit Mirsim.

Lacking revolutionary chronological evidence, the Ain Shems material will be valuable chiefly for furnishing further examples of types whose exact chronology is fixed in greater detail at other sites. Its usefulness is assured by abundant photographs, which are almost always adequate, and really admirable color plates. Perhaps the chief value of the work at Ain Shems lies in the light it casts on domestic life in ancient Palestine. Homely details are carefully considered and published in full detail.

JOHN FRANKLIN DANIEL

UNIVERSITY OF PENNSYLVANIA

THE HYKSOS RECONSIDERED. The Oriental Institute of the University of Chicago, Studies in Ancient Oriental Civilization, No. 18, by Robert M. Engberg. Pp. xi+50. Chicago, The University of Chicago Press, 1939. \$1.00.

This brief monograph attacks a large problem. Discoveries of the past few decades have shown that the Hyksos were much more than a mere episode in the history of Egypt, for all the revolutionary consequences of Egypt's subjugation by these invaders. The invasion of the Nile valley was only a single phase in a large-scale movement which affected directly Syria and Palestine and had a considerable effect on the whole of the Near East. The study of the Hyksos becomes thus a problem in cultural and political interrelations which calls for the correlation of a mass of archaeological and epigraphic material. Dr. Engberg has achieved the required synthesis and he has done so in the remarkably economical compass of fifty lucid pages.

The archaeological sources are of particular importance at the present stage of the investigation because they are comparatively recent; they impart to the problem a broader perspective which the earlier inscriptional material was incapable of suggesting. Engberg's first-hand knowledge of Palestinian archaeology provides an ex-

cellent background for intercepting the Hyksos, so to speak, on their way to Egypt.

The author agrees with his immediate predecessors that the Hyksos consisted of ethnically disparate groups. These groups arrived, in his opinion, in small numbers which grew in importance and influence as their infiltration continued, until they became at last a decisive political power. This reviewer has no quarrel with the main outline of the composition and progress of the Hyksos. He regrets only that the lines have not been drawn sharply enough where such a procedure was possible. For instance, the statement that the Hyksos "were a highly civilized people" (p. 23) may be misunderstood by some readers as corroboration of the popular belief that the term "Hyksos" referred to an ethnic unit, although elsewhere it is made clear that the appellation was descriptive. The fact that the name is used in connection with Semitic Asiatics as early as 1900 B.C. (p. 33) speaks for itself. The "rulers of foreign lands" were Asiatics and bore at first Semitic names. It is only in later times, when the great migration was in full swing, that non-Semitic elements are found among the Hyksos and that the term itself acquires a specialized political connotation. The identity of these additional elements is not absolutely clear. On archaeological grounds the Hurrians present notable claims for inclusion among the Hyksos and these claims may be confirmed in part by considerations of a linguistic nature. Since the publication of the monograph before us fresh information on the Hurrians has been made available through the results of the excavations at 'Atshāna-Alalkha, which adds force to Engberg's conclusions. But the possibility of still other ethnic elements, possibly Aryan, must be borne in mind, as the author recognizes. In short, "Hyksos" represents from the Egyptian standpoint Asiatic elements of foreign origin, without defining the ethnic character of such elements.

In a book which covers so much ground in so little space any reviewer is likely to find details which will bear more than one interpretation; such debatable items need not be cited at this time. It is more significant to observe that the author does not hesitate to give up time-honored interpretations which are no longer tenable. Thus he is aware that "the Aramean about to perish" of Deuteronomy 26:5 has been reprieved by Assyriology; his "roving Aramean," however, is a half-way measure; the correct translation is

"fugitive Aramean," which does justice to etymology and contents alike.

E. A. SPEISER

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THE MEGIDDO IVORIES, by *Gordon Loud*. The University of Chicago, Oriental Institute Publications, Vol. LII. Pp. xi+25, pls. 63. University of Chicago Press, 1939. \$15.00.

The preliminary report had shown already how valuable an addition the find from Megiddo is to our knowledge of Oriental ivories. The present publication bears this impression out to an even greater extent. We must be very grateful to the author for his prompt and fine work. It consists of good photographs and of drawings and reconstructions in cases of bad preservation. These drawings seem wholly reliable. The text begins with a list of the "Phoenician" ivories hitherto known. The term "Phoenician" is wisely put in quotation marks and it is said that there is no reason to believe that many pieces were literally of Phoenician manufacture. I would not even go so far as to assume that such works made outside Phoenicia were the products of imported Phoenician artisans or made in imitation of Phoenician prototypes. I rather think that ivory carving was in vogue all over Syria and that Phoenicia participated in it only as a part of this wider area. The problem of Phoenician art is still a difficult one (cf. my remarks in *Frühe Plastik in Griechenland und Vorderasien*, p. 137). It is certain from the finds at Byblos that Phoenician art is strongly Egyptianizing. Can we be sure, however, that there were not other workshops in Phoenicia using a more Asiatic style, and can we exclude the fact that no Egyptianizing works were made elsewhere? The ivory plaque, Montet, *Byblos*, pl. 142, no. 878, is not Egyptianizing. Direct Egyptian influence seems likely in the ivory from a place as close to Egypt as Beth-Pelet (Petrie, *Beth-Pelet* i, pl. 55; cf. Barnett's different opinion: *PEQ.* 71, 1939, p. 7; and the direct Egyptian influence in Beth-shan: A. Rowe, *Beth-Shan, Topography and History*). Another suggestion by the author is very plausible. He concludes from the heterogeneous character of the hoards of ivories from Assyria and Palestine and from the fact that those from Megiddo were found in helter-skelter confusion excluding their belonging to furniture, that the collecting of ivories was a hobby.

A chapter on the "archaeological context" follows with a brief description of the palace and of

the condition in which the ivories were found. The cartouche of Ramses III on a model pen case proves that the palace was destroyed about 1150. The ivories might therefore be dated roughly from 1350 to 1150, and thus considerably earlier than most of the other hoards, a fact which enhances their value. Five hieroglyphic inscriptions are studied by John A. Wilson. The catalogue describes briefly, but precisely, the 382 pieces, adding a few references to analogies. These are, unfortunately, very fragmentary: boxes, combs, bowls, jar lids, spoons with handles in animal or human form, gaming boards and pieces, plaques, bars, medallions, horn- and funnel-like objects, circular and elliptical discs and other more or less indeterminable pieces. The chapter "Character" is very short; the author stresses the difference of the Megiddo examples from the group of ivories found in Assyria and considers them an expression of local art, best termed "Canaanite-Phoenician," inspired by motives from many regions, namely Egypt, the Aegean and the Hittite Empire.

The ivories deserve a most intensive and comprehensive study. The reviewer can likewise give a few hints only to illustrate the wide ramifications of these ivories in Asia as well as in the Mediterranean area. Egyptian influence is found in the figure of Bes (no. 24); in Anubis (no. 25); in sphinxes (nos. 21-3); in spoons with handles in the form of figures (nos. 177-184); in duck's heads (nos. 202-209); in the *dd* symbol (nos. 168-172); in servants bringing geese (no. 162) and in the numerous plant motives (nos. 14, 15, 27-29, 116, 135-138, 165-167). The latter are more or less modified and represent new material for the study of Asiatic plant ornaments of the second millennium, as recently begun by Herzfeld (*Arch. Mitt. Iran* viii, pp. 146 ff.). Some motives can be traced back to Mesopotamian art of the third millennium: fighting animals (no. 107); the hero fighting an upright lion (no. 6); an animal with a plant in diagonal composition (no. 110; cf. *Ur Excavations* ii, pl. 103; later examples: E. Grant, *Ain Shems* i, pl. 19; *Brit. Mus. Cat. Greek Coins, Ionia*, pl. XI; *JRS.* xxvii, 1937, p. 177; *RA.* 27, 1928, p. 75; *BonnJb.* 138, pp. 138 ff.); the heraldic group of two animals on either side of a tree (no. 125); the crouching animal with the head bent backward (no. 125; cf. vii. *Ber. Uruk-Warka*, pl. 23 i; the motive was taken over by the Minoans and the "Hittites": F. Matz, *Frühkretische Siegel*, p. 59; Daniel, *B. Univ. Mus.* viii, no. 1, 1940, p. 14; it occurs in Egypt too: Davies

and Gardiner, *Anc. Eg. Paintings*, pl. 31; kneeling animals (no. 54; cf. the Entemena vase: Contenau, *Manuel d'Arch. Or.*, p. 602 and later Assyrian examples: Perrot-Chipiez, *Hist. Art* ii, p. 231; cf. Money-Coutts, *Berytus* iii, 1936, p. 132 f.); the gaming boards hardly need mentioning (nos. 220-225; cf. van Buren, *Iraq* iv, pp. 11 ff.; Macalister, *Gezer* ii, p. 416; Albright, *AASOR* xvii, 1936-7, p. 49; Evans, *PM*, iii, p. 408). The fluted bowl (no. 146) is important because it would be the first example of this type in case the bowls from Tell Halaf are later, as is probable; its occurrence at Megiddo at this time makes the suggested Assyrian origin unlikely (H. Luschey, *Die Phiale*, Diss. München, 1939, p. 79). Although some details are Egyptian on plaque no. 2 showing the celebration of a victory, most of the motives recur on the "standard" from Ur (*Ur Excavations* ii, pl. 91 f.; cf. also *Syria* xvi, 1935, pl. 28), so that an Asiatic tradition might be postulated. One plaque (no. 44) is a close imitation of a Chittic prototype, as is pointed out by the author; the reliefs from Yasilikaya and Fassiler show the nearest parallels. The kneeling archer hunting animals is found on a relief from Euyuk and on a Minoan seal which copies Asiatic prototypes (no. 125; cf. Garstang, *The Hittite Empire*, pl. 31; Evans, *PM*, i, p. 197; Matz, *loc. cit.*, p. 125). The sphinx on the box no. 1 has a hairdress very similar to that of a sphinx at Euyuk (Garstang, *loc. cit.*, pl. 27), and the lion of the same box resembles the one on a gateway at Boghazkeui (Bittel, *Die Ruinen von Boğazköy*, p. 22). The griffin of plaque no. 32 is identical with Mycenaean ivories (cf. Barnett, *PEQ.* 77, 1939, p. 13). The rhyta in the shape of animal heads visible above the wine vessel on plaque 2 add further proof that this type was taken over from the Orient by the Minoans (*JdI.* xlii, 1927, p. 19; Evans, *PM*, ii, p. 268). The dress with tassels or pendants on plaques nos. 161 and 162 is important for the study of dress in the second half of the second millennium (cf. *JdI.* xlii, pp. 16, 24 and *MDOG.* 77, 1939, 25). The spiraliform mantle on the same plaque is "Hittite" (Garstang, *loc. cit.*, pls. 29, 49). The female figurine no. 175 resembles closely one found at Rhodes (Blinkenberg, *Lindos*, pl. 64, no. 1582). The dog (?) beneath the horses of a chariot and the pose of the charioteer on plaques nos. 36 and 159 recur later on in Ionia (Swindler, *Anc. Painting*, fig. 223). Chariots and soldiers, as on plaque no. 161, adorn Etruscan reliefs (van Buren, *Terracotta Revetments from*

Etruria and Latium, pl. 29). This survey might suffice to show the extreme importance of the find on which the Oriental Institute can be congratulated.

VALENTIN MÜLLER

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THE TREASURY OF PERSEPOLIS AND OTHER DISCOVERIES IN THE HOMELAND OF THE ACHAEMENIANS, by *Erich Schmidt*. Oriental Institute Communications No. 21. Pp. xxi + 139, figs. 97. The University of Chicago Press, 1939. \$4.00.

This report, although preliminary and popular, contains much material valuable for the scholar. Of such outstanding importance is the new plan of the terrace of Persepolis, showing a number of new buildings. To one of them (B) a detailed description is devoted in the first chapter. It consists of a chief courtyard, a large hypostyle hall and a number of other rooms. The finds, namely 730 cuneiform tablets, seals, military equipment (including arrowheads and gold-plated armor scales) and stone vases which are the remnants of the royal table ware, make it certain that the building was the Treasury built by Darius. Other finds also might be mentioned: a pedestal of three bronze lions; objects of alabaster with the cartouches of Necho and Amasis; a Greek original representing a seated woman (to be published later); fragments of the god Bes in alabaster and blue paste; a bronze statuette of Harsaphes; coins of Croesus from Cyprus and from Athens; fragments of glass vessels; and last, though not least, two wonderful and well preserved reliefs showing Darius and Xerxes with dignitaries in an audience scene. The remaining chapters deal rather briefly with other items: the defensive system of Persepolis and the chronology of some buildings on the terrace. The Hundred-Columned Hall was started by Xerxes and completed by Artaxerxes I; the Harem (C) was built by Darius and Xerxes; the "Tripylon" (E) was probably the first audience hall preceding the Apadana (J), built by Darius and Xerxes; the "hillock" seems to contain a building built by Xerxes and later on buried by him under an artificial terrace. At Naqsh-e Rostam Sassanian and Islamic layers were found inside the fortification wall which enclosed the precinct, as Herzfeld had discovered. The almost total absence of glazed ceramics here, together with other considerations, makes the author believe that Iran had no share in the development of this

ware. Some tests were made at Istakhr. Nothing Achaemenian was found, so that the beginning must date from the Seleucid period. Very fine Islamic ceramics came to light and also fragments of imported T'ang ware. A beautiful piece of sculpture showing in relief lions and winged figures was found in Sassanian context. Herzfeld suggests a much earlier date and the reviewer is inclined to see in it a late archaic Greek work, unless the small illustration is misleading. A few pages and illustrations are devoted to the prehistoric settlement at Tall-i-Bakun, the excavation of which was begun by Herzfeld (*Iran. Denkm.* i A). The last chapter is a most interesting account of the aerial work done in the Persepolis area.

VALENTIN MÜLLER

BRYN MAWR COLLEGE

CORPUS VASORUM ANTIQVORVM, DEUTSCHLAND, MÜNCHEN, MUSEVM ANTIKER KLEINKUNST (Deutschland, Band 3; München, Band 1), by *Reinhard Lullies*. Pp. 38, 52 pls. München, C. H. Beck'sche Verlagsbuchhandlung, 1939. RM 15.

The collection of Attic vases in the Museum Antiker Kleinkunst in Munich ranks among the best in the world; but it has not received a consecutive treatment since Jahn's Catalogue was published—without illustrations—in 1854. It is good news, therefore, that we now have the first fascicule of what we hope may be a continuous series on this famous old collection. This first instalment treats of the Attic black-figured amphorae (*Bauchamphoren*), fifty-nine in all. The earliest is a fine example of about 600 B.C., important for its well-preserved head of a woman inside a panel; the latest is a beautiful specimen of the Leagros group.

The work has been admirably done. The modern restorations, which were executed in the early nineteenth century and which had long disfigured some of the finest and most important vases, have been removed. Excellent new photographs, comprising many details, have been taken and they are presented in first class collotypes. What a relief it is, for instance, to look at such old friends as the Birth of Athena, pl. 19, 1 (*Élite céram.* i, pl. 60) or the Quarrel of Ajax and Odysseus, pl. 43 (*AZ.* xii 1854, pl. 67) and not have to wonder all the time what is new and what is old in the pictures. Lullies' text is also exemplary, giving just what is needed in a concise and lucid manner—bibliography, description, date, a definite or tentative attribu-

tion, occasionally a short evaluation. Facsimiles of inscriptions, including graffiti and dipinti, have also been supplied (drawn by B. Baer), the two latter, however, without any attempt at interpretation.

Henceforth we can study this collection almost better comfortably seated in a chair with this model catalogue than stretching and stooping in front of the originals in Munich.

GISELA M. A. RICHTER

METROPOLITAN MUSEUM
OF ART

HELLENIC HISTORY, by *George Willis Botsford*. Revised and Rewritten by *Charles Alexander Robinson, Jr.* Pp. xiv+398. Select Bibliography and Index. 72 full-page pls., 8 figs., 17 maps. New York, The Macmillan Company, 1939. \$4.50.

This work is more than a revision of Botsford (1922); it is essentially a new work. Although many of the best passages have been taken over from the first edition, much new material has been added and a fresh unity has been achieved by rearrangement, recasting and the use of skilful transitional paragraphs.

Largely new are: the Introduction, which admirably states the problem to which the student should address himself, and suggests similarities and differences between Hellenic and modern civilization; The Bronze Age, The Geometric Period, which might more appropriately have received its title from our principal literary source for the period than from the prevalent pottery design; The City State; Alexander the Great and Greece during Alexander's absence—a very important period inadequately treated by Botsford, in which the reviser, as would be expected from his special studies in this field, is at his best; The New Era, treating of the changed order after Alexander's death; The Third Century; The Social and Economic Conditions of the Hellenistic Age, short, but adequate; Egypt and Asia under the Successors; and The Encroachment of Rome.

One of the weakest parts of Botsford's text has become the strongest feature of the revision—the treatment of the archaeological evidence and the objects of art. Indeed, although the reviser writes, "When all is said and done it (archaeology) can not hope to do more than supplement the written records" (p. 6), he gives a disproportionate emphasis to art and archaeology by omitting (with few exceptions) the many excellent

quotations which Botsford introduced from poets, dramatists, historians and philosophers, which, in spite of Rostovtzeff's animadversion against extracts ("Mere quotations from great literary works are lifeless things, and therefore I abstain from them." *A History of the Ancient World* i, Oxford, 1926, ix) are of great value in stimulating the student to read entire works and in giving him a sense of the reality of history. Such extracts stand roughly in the same relation to the literary evidence as illustrations to the archaeological evidence and their absence, therefore, calls forth a "these ought ye to have done, and not to leave the other undone," all the more regretfully because of the very commendable fullness of treatment in the fields of archaeology and art.

This reviewer does not know of a college text in Greek history that equals the present work in its treatment of art and archaeology as an integral part of historical evidence; it is comprehensive, characterized by sound judgment and illustrated by well chosen and beautifully executed plates. Included among the 72 full page plates are: The Bronze Zeus from the sea off Euboea (two plates, one of the entire figure, p. 149, the other of the head and chest, frontispiece); an excellent picture of the Excavations in the Agora, p. 190; an air-plane view of the Acropolis from the southwest, p. 191; Alexander the Great mosaic from Pompeii, p. 267; Stevens' reconstruction of the Periclean Entrance Court, p. 234; three plates showing representative coins of the fifth to the second centuries, pp. 266, 312, 360. The clarity with which the drawings upon the vases and cylices are brought out, is worthy of special praise. In addition to a short descriptive caption, the date or approximate date, the name of the artist, when known, and the provenience, are given. It is unfortunate that the portraiture of outstanding men, such as Plato, Demosthenes, Euripides and Alexander the Great has been entirely neglected, although the Bronze Zeus receives, as has been mentioned, two plates and both the Aphrodite from Melos, p. 342, and the Aphrodite from Cyrene, p. 343, are represented. Students like to know how historical characters "looked."

The discussions of art and archaeology clearly and succinctly bring out the features of significance in the interpretation of the cultural development of the Greeks and their response to such influences from without. Thus in describing the pottery of the seventh century B.C., the reviser writes, "The geometric style, with its elaborate

surface decorations, yields now to strong oriental influences. Lotus flowers, winged lions and other animals, sphinxes and griffins, curved lines . . . announce the new orientalizing style . . . Narrative, discipline, formalism are not uppermost" p. 95. Concerning the temple of this period, we read, "In floor plan it resembled the Mycenaean megaron, but it seems clear that the two descended from a common prototype, each being brought to Greece by a wave of northern invaders," p. 96; concerning the sculpture, "(the Greeks of the archaic period) worshipping gods at once divine and human, carved statues which are inevitably marked in the beginning by an aloofness that gradually yields to realism . . . Decorativeness and simplicity are among the special delights of archaic Greek sculpture" (p. 100). Pottery takes on a new meaning when the student is told: . . . "it gives us an idea of the potter's sense of shape and line, just as the decorations reveal his imagination and feeling for color. Incidentally a variety of shapes testifies to the varied needs of the day and the ability to satisfy them" (p. 9).

The treatment of the Doric and Ionic orders of architecture is commendably clear. Although it is probably true that they "developed from construction in wood," p. 97, their origin is still conjectural and the statement might with greater accuracy be confined to the columns and the prototypes of these orders be described as half-timbered structures, although, to be sure, the Ionic order seems to have developed "from a type of building more exclusively wooden" (D. S. Robertson, *CAH.* iv, p. 608). The Mycenaean house receives attention, but no mention is made of the Homeric house. The study of the houses at Olynthus (D. M. Robinson and J. W. Graham, *Excavations at Olynthus*, Part 8, The Hellenic House, Johns Hopkins Press, Baltimore, 1938), did not, perhaps, appear in time to be used for a discussion of the house of that period.

In a remarkably compact chapter of 20 pages are interestingly described the principal features of civilization in Crete, Troy, Mycenae and Tiryns during the Bronze Age, which is divided according to Evans' chronology into Early, Middle and Late Periods. The interpretation of this period in which "archaeology is history" follows, in the main, conservative lines. About 3000 B.C. "a Mediterranean stock, probably from Asia Minor" came to Crete and developed a civilization, which while mainly Cretan, was strongly influenced by Egypt and differed from the culture of the Greek

mainland. The palace at Cnossos indicates a period of peace under a priest-king and a bureaucratic government; whether the rule extended over the whole island, is left undecided. The palace was "probably" destroyed by an earthquake. No mention is made of a change from hieroglyphic to linear writing (Glotz, *Histoire Grecque* i, p. 35) which might indicate a change of dynasty accomplished by revolution. Mycenae is "more reasonably" explained as a "native power under Minoan influence" than a Cretan outpost. Blegen's Troy VIIa is "the" Troy and was destroyed by fire at about the time set by legend for the Trojan War, a war which had for its object loot and land.

The plan of the book throughout is to present the purely historical narrative of each period, followed by a section or a chapter devoted to the art, literature, social and economic life of the age. While this procedure results in a well-rounded picture of the activities of the Hellenes, it inevitably necessitates the compression of political events into a narrower compass, which Professor Hyde in his review of the first edition (*Cl. W.* 16, 1923, pp. 124-126) rightly criticized, mentioning particularly the brief treatment of the battle of Thermopylae (12 lines) and of the Sicilian expedition, which he called "wholly inadequate," and the "exceedingly brief" character sketches of important personages like Pelopidas, Epaminondas and Dionysius II. These parts remain unchanged in the new edition, but the battle of Chaeronea and the account of Alexander's conquests, which Hyde also criticized for their brevity, have been amplified. This reviewer feels that the increased emphasis upon cultural achievements is desirable, but deprecates the still inadequate treatment of some purely historical events.

The work is characterized by a pleasing and lucid style. The reader is made to see the meaning of events, to relate the factors of environment and temperament to action. Ideas are often expressed in slogan-like statements which are easily remembered. Provocative questions invite to interpretative attempts, as for example, "Was tyranny due to the development of industry, or is it just a coincidence that tyranny flourished along the trade routes from Asia Minor to the West?" p. 49.

To be regretted is the absence from this edition (with several exceptions) of references to the sources, which are of value to the serious student of history, and are a means of correlation with the

work in courses on Greek Literature in Translation, which is becoming more general.

The following statements are open to question, qualification, or different interpretation. "Any idea of a majority vote (in the Homeric Council) was totally absent," p. 34. The passages given by Botsford, who is responsible for the statement, do not give proof of its correctness. "Homer wrote at Chios," p. 38. "The chief function of the oracle (at Delphi) was not to reveal the future," p. 86. "This act (Pericles' measure for the payment of jurors) completely democratized the institution, as it enabled the poorest to attend regularly in large numbers," p. 156. "The fact that he (Alexander) did not take the regular route from Memphis is almost convincing proof that the expedition (to the oracle of Ammon) was chiefly one of adventure and not primarily a serious matter of state," p. 246. "The Jews . . . were valued by the Ptolemies as good soldiers," p. 320. "Terrible as life was for the Egyptian peasants under the Ptolemies, it could be much worse and was under the Romans," p. 325.

Plate XXXIII, captioned, "The Discobolus. Roman Copy of a Bronze Original by Myron," should be described as a composite cast, based on a marble torso in the National Museum in Rome and a head in the Lancellotti collection in the same city. The choregic monument of Lysicrates need not be dated "about 334," but can be dated exactly by the inscription on the architrave, in the archonship of Euainetos, 335/4. College students being what they are, it might be clearer to say, "Built about 425 B.C." in the caption of plate XLIX, instead of "The Temple of Poseidon at Sunium. About 425 B.C." It should be stated that the Maenad in the Dresden Albertinum is "probably" after an original of Scopas of Paros, if it is identified with the frenzied maenad mentioned by Kallistratos, *Stat.* 2; cf. *Anthol. Gr.* iii, 57 and i, 74.75; and so too, it should be indicated that all authorities do not agree that the Agias from Delphi, plate LX, is "a contemporary copy after a bronze original by Lysippus of Sicyon," and that the ascription of the drunken old woman from the Glyptothek in Munich to Myron of Thebes is doubtful.

The reviser shows an undue fondness for the technical terms of archaeology, which in books of this kind are more appropriately given in parentheses after the use of a more commonly understood expression, e.g. *socle* (p. 13), *dado* (p. 14), *aniconic* (p. 17), *breccia* (p. 20), *niello* (p. 22),

corbelled (p. 23), *in antis*, used without explanation on p. 23, but explained p. 96; a fondness for the repetition of clichés,—"to enclose space and not simply to define it," "statues of men rather than of Man."

In spite of the statement in the Preface that the transliteration of Greek words follow the suggestions of the Council of the Hellenic Society, *colacretae* seems inconsistent with *kouroi*, *kosmoi*, *kleroi*; *korai* with *hetaerae*, *ephetae*, *euthynae*; *oecumene* and *economus* with *poikile* and *synoikismos*. Some minor infelicities of language occur: "Not infrequently incised lines in geometrical decorations were employed and later on (at a later period?) were filled with powdered gypsum" (p. 9). "Bactria, then, is a march (why not border, or buffer?) state" (p. 332). "... praising in short epic hexameters," p. 38 (short epics in hexameter?). Why the English spelling "gramme"? p. 58 and when will American writers have done with the ambiguous "corn" when "grain" serves the purpose admirably?

No typographical errors were noticed, except a wrong reference in the index to p. 194 (read 94) for Prometheus. A usable bibliography for each chapter, eight Plans including Sterling Dow's Athenian Allotment Machine, 17 carefully executed maps among which the map showing Greek Colonization and Alexander's Empire are particularly good, a serviceable index, add their part in making this an excellent text which will be welcomed by teachers of Greek history everywhere.

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FROM THE COLLECTIONS OF THE NY CARLSBERG GLYPOTHEK, Vol. II. Pp. xi+256. Copenhagen, Ejnar Munksgaard, 1939. Kr. 22.40.

This sequel to a miscellany published by the Ny Carlsberg Glyptothek in 1931 is to be continued as an irregular serial devoted to research in the collections of that museum.

F. Poulsen's "Gab es eine alexandrinische Kunst?" (pp. 1-52, 52 figs.) is an enquiry into the range, quality and influence of Alexandrian art, from the point of view of one who has returned to its specimens in the Glyptothek from a tour of special study in Egypt and the Near East, carried as far as Bagdad. Of ancient Alexandria, *etiam periere ruinae*: but an agnostic attitude to its art is no less unreasonable than Schreiber's Panalexandrianism. There are tombs and at least

one elaborate wooden model to give us some visual knowledge even of its architecture, enough to hint that Alexandria was the source of some features of the Campanian house (mural painting in imitation of stone, and the peristyle). Alexandrian sculpture is in certain departments rather characterless, strongly and sometimes perniciously influenced by the tradition of Praxiteles, but there is nothing provincial in the style of such royal portraits as are certainly Alexandrian in technique as well as in subject. Besides this impressive court sculpture, there are many portraits in a style of simple severity to which Roman art must owe something; a livelier realism, quite peculiarly Alexandrian, is seen in the terracottas. For Alexandrian sculpture above the plane of portraiture or "genre" the Glyptothek's marble head of Poseidon is of cardinal importance; far from being Pergamene, this represents the developed baroque of the religious art of Alexandria.

O. Koefoed-Petersen in "Un hippopotame de l'Égypte archaïque" (pp. 53-64, 8 figs.) does full justice to an already famous limestone figurine, once in von Bissing's possession, afterwards in the Scheurleer collection, and recently acquired by the Glyptothek. The paper ends with a note on the faience hippopotami of a later time, the Middle Empire, and publishes the museum's specimen of this group. V. H. Poulsen's study "Three Archaic Heads in the Ny Carlsberg Glyptothek" (pp. 65-112, 34 figs.) ranges in many directions, but is centered upon some recent loans of the Ny Carlsberg Foundation: a magnificent fragment in Naxian marble, but of Attic rather than Naxian style, closely related to the New York kouros; a Thasian head from the Wix collection, already well known for its animation and graceful proportions; last and altogether least, an Attic herm of about 480 B.C. It is of especial interest that the author, taking up the problem of Ionian influence where Payne left it, suggests that Ionia had much to do with a great change from monumental severity to genial refinement in West Greek sculpture about the middle of the sixth century. The evidence of this is found chiefly in the style of Ionian plastic vases. No student of the tendencies and chronology of archaic sculpture (and no connoisseur of "gorgoneion" lekythoi) can afford to neglect this paper, in spite of a certain looseness in its method and logic.

Ada Bruhn in "Greek Vases in the Ny Carlsberg Glyptothek" (pp. 113-139, 25 figs.) presents

seventeen pieces omitted from, or acquired after, the publications of Frederik and Vagn Poulsen. Here are some new attributions: a kylix is given to the Kodros Painter, a kotyle to the Splanchnopt Painter, a skyphos to the Eretria Painter. In a discussion of the odd little skyphos bearing the name Pistias, it is said that the signature on the skyphos of Klitomenes in Princeton is incomplete; that is not so (see *AJA.* 1926, p. 437).

Under the title "Some Campanian Types of Heads" (pp. 140-168, 25 figs.), P. J. Riis exploits enterprisingly an attractive subject almost new to scholarship, the miniature masks of terracotta, late archaic or early classical in style, yielded by Campanian graves; they were probably coffin ornaments. His study of the development and chronology of certain principal types yields something like a comprehensive chart of Campanian plastic art in its earlier phases; for it reaches out to explore not only the parallel development of local bronzes, but also the pedigree of the masks as traceable into an earlier series of Campanian terracottas, the antefixes. If Capua, as Riis believes, produced not only these masks but also the Copenhagen infundibulum and the statuettes ornamenting a class of bronze dinoi associated with Campanian sites, its art deserves high respect. That the dinoi were probably Capuan, certainly not Chalcidian was also the judgment of the late Humphry Payne, Riis reports. The reviewer can add that Riis' unquestioning acceptance of the black-figured vases as products of Chalkis is contrary to the view held by Payne in the last year of his life.

F. Poulsen and the sculptor Elo have undertaken a new "Reconstruction of the Lysippan Socrates" (pp. 169-182, 11 figs.), based on the Ludovisi copy now in the Ny Carlsberg Glyptothek and the apparently quite faithful reproduction of that copy engraved by Preisler before the Ludovisi statue lost, through weathering, the parts attached by ancient tenons. The result is a composition of restless but harmonious vigor, in which the folds of the mantle are very effectively related to the inclination of the trunk and the posture of the "shuffling" legs. This enlivening of a seated type is characteristic of Lysippus' style, as other works help to show. In the present reconstruction a cast of the Terme head is retained, reluctantly; its hermlike frontality of modelling does not suit too well the general rhythm.

Ejnar Dyggve's "A Lectern in the Ny Carls-

berg Glyptothek" (pp. 183-210, 25 figs.) shows that the ambo in Copenhagen carved by one Ambrosius for an Abbot Petrus out of a Roman altar has been dated much too early; the remodelling was done not in the fourth but in the eleventh or twelfth century. The importance of this probably Tuscan work is in its being a monument of a "renaissance before the Renaissance," in many features there is faithful if artless imitation of the style of arae earlier than the second-century specimen which Ambrosius destroyed to make this lectern. Does the "hexameter," suggested as an improvement of the inscription for the telamon (p. 192), come up to the standard of Abbot Petrus' elsewhere tolerable prosody?

The volume closes with two papers not archaeological: Haarvard Rostrup contributes a study of the museum's collection of Rodin drawings, and Thorlacius Ussing has new light to throw on the career of the sculptor Freund, Thorwaldsen's most original pupil.

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DER SPÄTANTIKE BILDSCHMUCK DES KONSTANTINUSBOGENS, by Hans Peter L'Orange, with the coöperation of Armin von Gerkan: in *Studien zur spätantiken Kunstgeschichte*, published for the German Archaeological Institute, ed. by Hans Lietzmann and Gerhart Rodenwaldt, Vol. 10. Text, pp. xii+239 with 65 illustrations on plates and 3 plates with coins. Folder with 50 plates in folio. Walter de Gruyter & Co., Berlin, 1939. RM 126.

The study of late antique art has received much attention from many scholars since the fundamental paper by Rodenwaldt (*RM.* 36/37, 1921/2, pp. 58 ff.) showed the importance of the transitional period from Roman art which is still a continuation of Greek art to mediaeval Christian and Byzantine art. Rodenwaldt himself (*RM.* 38/39, 1923/4, pp. 1 ff.; *AA.* 48, 1933, pp. 46 ff.; *JdI.* 51, 1936, pp. 82 ff.) and other scholars, such as Kaehler, Schönebeck, von Gerkan, L'Orange and Margarete Gütschow (cf. "Das Museum der Praetextat-Katakomben," in *Memorie della Ponteficia Accademia Romana di Archeologia* iv, 2, 1939), as well as American scholars: Morey ("Sarcophagus of Claudia Antonia-Sabina and the Asiatic Sarcophagi," in *Sardis* v, 1, 1924) and Marion Lawrence ("City Gate Sarcophagi," in *Art Bulletin* 10, 1927/28 and "Sarcophagus at Lanuvium" in *AJA.* 32, 1928, pp. 421 ff.) have

mostly centered their attention on sarcophagi. This new investigation adds to the important series a study of the arch of Constantine, which not only sums up all older researches, but by a comprehensive study of all the sculptures and their relation to contemporary literature, coins and other products gives an excellent picture of art in the beginning of the fourth century.

The investigation was begun in 1931 under the initiative of Ludwig Curtius, then director of the German Archaeological Institute in Rome, and continued by his successor, von Gerkan, and the Norwegian scholar L'Orange, author of important studies in the history of the late antique portrait (*Studien zur Geschichte des spätantiken Porträts*, 1933). They had, in 1936, the help of a movable scaffolding, from which for the first time the sculptures of the arch could be studied thoroughly and photographed by the splendid Italian photographer, Faraglia. The larger part of the text is due to the Norwegian author, who was aided by the Norwegian Nansen foundation and the University of Oslo. Armin von Gerkan has contributed the chapter on the origin and dating of the arch (pp. 4-28) and all the drawings. His most important results are: the exact dating of the arch between October 29, 312 and July 25, 315; the proof that the late antique parts of the decoration must have been worked in the year 315 and not earlier; that all the other older reliefs were chosen because they could be reinterpreted in the sense of the actual situation and that they all are part of the late antique decoration of the arch. The inscriptions on the attic, the acclamations inside the main passage and the votive inscriptions over the pairs of medallions on both fronts, all agree with the meaning of the sculptures. For the first time all parts of the arch are interpreted as contemporary and as an absolute unit. Thus Gerkan refutes definitely the idea of Frothingham that the arch originally erected for Domitian was redecorated several times. All reliefs are thick blocks of stone, not thin incrustated plates. All are in close contact with the building. Despite the fact that many of these building stones have been taken from Hadrianic, Trajanic and Aurelian monuments we have here a unified building in honor of Constantine. The exact date is derived from the inscriptions. The praise: "Liberatori Urbis" and "Fundatori Quietis" testify to a date after the defeat of Maxentius, and the inscription "Sic X Sic XX" meaning the Decennalia and Vicennalia, can only be related to the Decennalia of 315 and

the wish to celebrate again in ten years in the same manner.

The investigations of A. von Gerkan, based on actual facts, are corroborated by the investigation of the artistic style by L'Orange in the following chapter (pp. 29-33; cf. also pp. 192-198). All late antique sculptures have the same individual forms which recur in the different cycles of the decoration. Particularly characteristic are: the rendering of rocks; of idealistic hairdressing with spirals rolled in different directions; the repetition of whole figures and of capricious drawing of folds. There are two distinctive methods of representation, but they belong to the same workshop. One manner is used for real figures. They are spread out in pure silhouettes in the plane with unbalanced single motifs of peculiar harshness. The second manner is used for ideal figures. In these the figures are detached plastically from the background, and are covered in an artificial way with pretty lines and calligraphic folds. The heads of Constantine and of his co-emperor Licinius, the new ones as well as the reworked ones, both of which are inserted on the older sculptures, are worked by another master.

The artistic as well as the objective unity of the historical friezes is particularly emphasized in the following chapter, which gives also an exact description of the troops represented and of each single relief (pp. 34-102). It is shown that the method of working chiefly with the drill and the method of using the chisel for shaping the surface were used side by side in the same relief or even on the same figure. With regard to content the cycle is continuous. It begins with eight military pictures in profile view, all turned to the right in continuous sequence, as on the Trajan and Marcus columns. There follow the two reliefs on the north side, right and left of the main passageway, with symmetrical arrangement around a central motif. The continuity of the military scenes is emphasized by the fact that the stream of figures is led through two arches at the two south corners. The scenes have the same sequence as on the arch of Septimius Severus: preparation, war itself, the emperor as victor and then peaceful scenes with the emperor as orator and benefactor.

Each scene is locally fixed. The expedition begins at the city gate of Mediolanum. The captured city is Verona. The battle against Maxentius takes place at the Mulvian bridge on the Via Flaminia. The triumphal entrance of the army takes place between Porta Flaminia and the

Campus Martius. The Oratio is delivered on the rostra of the forum and the distribution of awards takes place in the Forum of Caesar. The troops are all unmistakably characterized as combatants or trained soldiers, as regular fighting soldiers or *cornuti*, as normal or foreign divisions, such as the Maurians from Africa with their camels. The standards are crowned with Victory and Sol Invictus represented as on coins and this type also occurs twice on the pedestal reliefs.

All scenes are carefully compared with literary and other pictorial sources and it is shown in a convincing manner how well they agree. The emperor makes his first appearance in the *obsidio*, the siege of Verona. In all scenes of the frieze the head of the emperor is lost because it was separately worked and inserted, but as he is always represented on a larger scale than his surroundings, he can be easily recognized. He enters in a richly decorated car, through the Porta Flaminia at the Campus Martius, indicated by an elephant quadriga on the arch erected for Domitian in the Campus after his victory over the Germans in 83 A.D. This entry of Constantine took place on October 29, 312 and this date was later celebrated as *adventus Divi*. He is seen as a god on the two last reliefs. Our knowledge of the celebrated representation of the Forum Romanum with the rostra, the basilica Julia, the arches of Tiberius and Septimius Severus, has been enriched by L'Orange's discovery that the monument behind the emperor is the one erected for the Decennalia of Diocletian, to which a well known base preserved in the Forum belongs (cf. *RM.* 53, 1938, pp. 1 ff., figs. 1-12, pls. 1-8) and that the statues erected at the corners of the balustrade of the platform portray Hadrian and Marcus Aurelius, representatives of the golden age which Constantine was supposed to have revived. The crowd listening to the emperor's speech is excellently characterized. It is perhaps the best example of popular Roman art. The last scene is the distribution of gifts to *togati* and *paenulati*, that is, upper and lower class citizens. Interesting as it is in content, it is crudely and sketchily worked, being probably the last part of the task and therefore finished in a hurry. The two-storied building with two wings has been interpreted differently by Boethius (*Roma* 9, 1931, pp. 448 ff.), who saw in it an open gallery with supporting pillars, and by Lietzmann (*SBA.* 1927, pp. 344 ff.), whom L'Orange follows. He describes it as separate boxes in the upper storey, divided by walls, to which separate staircases lead up. In

any case, we have here the *maeniana* in the upper storey of porticos around a forum, as described by Vitruvius V, 1, 1 f. I do not quite agree with the notion that the building has two wings which we must believe are at a right angle to the central scene with the emperor. When we compare a similar building with upper boxes, recently excavated at the Forum Julium (fig. 24), it is much more natural to assume one long building, the more so as L'Orange identifies the place of the distribution of money by Constantine as before a sanctuary of Minerva near the Forum Julium (cf. p. 93 f.). An interesting detail is the tablet with the twelve or six depressions for coins in the hand of the emperor and of the officials in the boxes, from which money is poured into the pouch of the *toga* or *paenula* (cf. pp. 96-98). The occasion of the *liberalitas* is the beginning of the consulate on January 1, 313. The emperor therefore wears the toga of the senator, and he is represented enthroned as Roman consul among Roman senators making them and the other Romans happy by gifts.

The twenty-four reliefs on the eight pedestals are shown to have been distributed symmetrically in relation to the central axis (pp. 103-136). Each has a victory in front, worked in calligraphic lines with strong use of drill effects in order to give a good view from a distance. The victory who writes on a shield is an old motif (cf. Alföldi, *RM.* 49, 1934, pp. 98 ff.), but its adaptation here is somewhat awkward, as when the sides are changed and the foot put on the leg of the prisoner as in no. 20, pl. 30 b. She does not write a victory on the shield as on the Trajan column, but *vota*, as the inscription shows. The soldiers on the sides are supposed to be marching in the triumphal procession and are dressed accordingly. They belong to the Legio I Minerva and the XXX Ulpia and they carry *signa* decorated with the portraits of the emperors, or with Sol Invictus and Victoria, the military gods. The prisoners which they lead by chains or which crouch at the feet of the victories are partly big Nordic people, Gauls or Germans, partly Orientals, Persians and Armenians, in each case in characteristic dress. The prisoners symbolize the *Victoria perpetua* of the emperor over all enemies north and east. The side pictures are worked in the same popular style as the friezes.

The original eight busts on the side passages belong to the most carefully executed parts of the sculptured decoration (pp. 137-144). They are badly preserved, partly lost, therefore only Sol

Invictus can be definitely named. The others were probably Jupiter, Constantine, Licinius and perhaps the ancestors of the emperors, such as Claudius Gothicus, Constantius Chlorus, Maximianus Hercules.

The six keystones (pp. 145-150) are also greatly damaged. Only Mercury with his cock, Mars and Roma Aeterna of the type of the porphyry Roma from Hadrian's Temple of Venus and Roma (Delbrück, *Porphyrwerke*, pp. 77 f., figs. 25-26) are certain. The fragment of drapery, no. 3, pl. 36 e, agrees neither with the coins (*Münztafel* 2, no. 18) nor with any of the types collected by Ernst Rink (*Die bildlichen Darstellungen des römischen Genius*, 1933). The explanation of no. 2, pl. 35 b as *Quies* or *Securitas Rei publicae* ought to be given a question mark, as *Par* is just as possible.

The victories, seasons and river gods in the spandrels of the arches (pp. 150-160) have a long tradition in Roman art. The types of victories over the main passage are first found in S. Remy and Pola; they carry trophies in the arch of Septimius Severus and subsequent sculptures, but here for the first time their heads are represented in front view. The seasons are found on the arch of Trajan at Beneventum and also on the arch of Septimius. The river gods over the side entrances were originally carried in triumphal procession. They also appear first in the spandrels at Beneventum. They symbolize the happiness and fertility of all provinces of the empire throughout the year.

Among the medallions only the two at the short sides are newly worked (pp. 161-165, cf. pp. 174-181). It is awkward to find above page 161, where the discussion of the medallion circle begins, the lengthy title: "The reused picture cycles: their late antique parts and their historical reinterpretations". This title ought to follow the description of Sol Invictus on the quadriga and Luna on the biga, with their stars Lucifer and Hesperus above and Oceanus below. These belong with the other Constantine reliefs surrounding them with cosmic scenery, and therefore are the last to be carefully investigated as to measurements, preservation, technique, style, description and interpretation.

The remaining reused sculptures are discussed in so far only as they have been reworked or reinterpreted to fit the general idea of the arch. In the Hadrianic hunting and sacrificial medallions (pp. 165-174) there are five instances in which the head of the emperor is reworked. The excellent

photographs on pls. 44-45 have convinced me and will convince everybody that L'Orange (as early as *Studien*, pp. 49 ff.) was right in interpreting the heads as those of Constantine and Licinius. On the north side Constantine is hunting, Licinius sacrificing and on the south side they change their rôles. Thus the reused reliefs become a demonstration of the imperial *Concordia*. The emperor who has killed a lion is a *liberator orbis* (cf. plate of coins, 3, 27). The much discussed rearrangement of the sequence of the medallions is explained by the fact that the north side as the more important must have the more important gods Apollo and Hercules. But according to Plotinus, Apollo and Diana are identified with Sol and Luna. These two direct all cosmic actions. The emperor also becomes equal to the sun-god, and therefore he has the nimbus of the sun-god on the north side. His hunting has a religious and allegorical meaning, and Sol and Luna become attributes of the emperor's cosmic world power. Similar ideas are found on coins. Thus the medallion cycle is explained by Neo-Platonic religious ideas. The way is prepared for transferring these attributes from the emperor to Christ.

The eight Aurelian reliefs on the attic (pp. 183-187) have been rearranged, deviating from the original sequence so as to give four pairs with the same content, probably one of each pair for one emperor. The sequence—military pictures in the south and peace scenes in the north—is the same as that found in the historical friezes. All the heads of the emperors in these reliefs were made in 1733 by Pietro Bracci. The Trajanic prisoners symbolize the enemies of the empire.

The Trajanic reliefs in the main passageway (pp. 187-191) have again the head of the emperor reworked to represent Constantine, who considered himself a hero in war and peace, like Trajan. He therefore appears quite naturally instead of Trajan at the head of his army³ and as victor between Victoria and Roma.

Thus all parts of the decoration, new and old, form an ideal unit, despite formal discrepancies. Constantine is, as the inscriptions in the passageway proclaim him, the savior of the city and the founder of peace. He has brought back the *Saeculum Aureum* of Trajan, Hadrian and Marcus Aurelius. The arch is his best medium of political propaganda.

The last chapter draws conclusions from this careful investigation. The style is summarized (pp. 192-198), the artistic circle to which the arch

belongs is defined (pp. 198-219) and many other works which belong to the same workshop are collected and illustrated (pp. 219-229). L'Orange rightly emphasizes the lack of ability on the part of the artisan and the dissolution of the craft in this workshop, which, however, must have been the leading one at the beginning of the fourth century. Most interesting is the fact that the calligraphic style is combined with the typical Roman popular style. A dying tradition wrestles for new forms. Characteristic are the broken contours and exaggerated isolated movements, the lack of relation in scale. But the exaggerations have expressive vigor and there are many new motifs. The overly large heads, reminiscent of children's drawings, have interesting proletarian faces.

The return to frontal views leads to the flat and linear style of Byzantine and mediaeval art. In contrast to Oriental art, individual forms, portraits and gestures are emphasized. The superhuman enlargement of the central figure is taken over from the Orient and leads to the Byzantine Autokrator, but the symmetrical centralized composition begins as early as the third century. The division of labor between artist and artisan whereby the former carves the important portrait and the latter the rest of the sculpture is an arrangement which can be traced in earlier sarcophagi. Among works related to the arch (figs. 27-49) most interesting is the sarcophagus of the *archigallus* from Porto (figs. 29-34). From the same workshop with the reliefs of the arch are the decorations of the Basilica of Maxentius, begun in 307 and finished by Constantine (cf. Kaehler, *JdI*. 51, 1936, pp. 180 ff., figs. 1-29; L'Orange, figs. 50-57), and many pagan as well as Christian sarcophagi (figs. 58-63; cf. the lists pp. 222 and 224-227). A special study of these sarcophagi is being prepared by F. Gerke for the same series. It will probably show still more clearly how the types of Roman senators, citizens and soldiers made in the workshop of the arch of Constantine became in Christian art patriarchs, saints, martyrs and Christian soldiers. These sarcophagi also show side by side the calligraphic manneristic idealistic style and the simple narrative, popular, realistic style, the first for traditional figures, the second for scenes from daily life. Later, with the help of the oriental style, the calligraphic style became victorious.

The usefulness of this substantial volume is heightened by an index of literary passages (p. 230), and an index of objects (pp. 231-238). Be-

sides the admirable plates there are careful drawings of the framing of the medallions (figs. 1-2, 7-8); of profiles of the friezes (figs. 9-13); excellent and rich illustrations of parallels and related monuments and three plates of important coins.

There are hardly any errors; the ones in the captions for pls. 36 and 50 have already been corrected on p. 239. All I have found besides these are: p. v, Index, second last row, read 137 instead of 138; p. 90, eleventh row from the bottom, read *Wirklichkeit*, instead of *Wiklichkeit*; p. 220, third line from the bottom, read Abb. 56 instead of 57, and last line Abb. 57 instead of 56.

This outstanding book will be the standard work for late antique art for a long time and it will outlive many minor works and deeds which seem important today.

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TAXATION IN EGYPT FROM AUGUSTUS TO DIOCLETIAN, by *Sherman LeRoy Wallace*. Pp. 872. Princeton, Princeton University Press, 1938. \$6.00.

My review of this book comes rather late—two years after its appearance. Many substantial reviews of it have been published, and much that is pertinent has been said about it. It is never too late, however, to draw the attention of specialists to a reliable, sound and useful contribution to our knowledge of such a fundamental phenomenon in the life of Roman Egypt. But it is natural that in the given conditions I should limit myself to a general appreciation of the book and abstain from detailed criticism.

In his preface Mr. Wallace defines the aim and the scope of his book in the following way:

"In this volume I have attempted to give a detailed and comprehensive discussion of the system of taxation in Egypt from the beginning of the principate of Augustus until the accession of Diocletian. In 1899 Wilcken published vol. 1 of his *Griechische Ostraka aus Aegypten und Nubien*, which contained a detailed discussion of the evidence then available concerning taxation in Graeco-Roman Egypt. When the work for the present volume was begun in 1931 there had been no comprehensive treatment published since Wilcken's, although many new documents referring to taxation, particularly in Lower Egypt, had been made available within that interval. It therefore seemed a service to papyrologists and to students of economic history to reduce the new

and old evidence to order, and the results of five years of study are here presented."

Mr. Wallace's book is indeed an excellent collection of material, old and new, regarding taxation in Roman Egypt, fairly complete, well organized, ably discussed. All those who will have to publish new papyrological documents concerning taxation in Roman Egypt will be grateful to the author for his invaluable help, as will all students of the history of Roman Egypt. They will find in Wallace's book, first, a detailed discussion of land taxes (mostly paid in kind) and of their collection (chs. I-V), then a still more detailed study of the money taxes of various kinds and of their collection (chs. VI-XVII), and in conclusion a rapid general survey of the revenues of Egypt (ch. XVIII), all with copious notes at the end of the book. A special Appendix (pp. 353-355) gives a useful list of names of taxes and abbreviations of them "concerning which it has been impossible to make any very helpful suggestion." The Index of Greek terms will be of great assistance to papyrologists and readers of papyri in general.

No more detailed survey of the contents of the book can be given here in this short review, for it would require too much space; nor do I intend to criticize the views of the author as regards the interpretation of the facts which he has collected. I may state, however, that in most of the cases when I have recurred to the help of Mr. Wallace in dealing with problems of taxation in Ptolemaic and Roman Egypt (and I have done so frequently) I have found his collection of material full and reliable, his bibliography up to date, his judgment in most cases sound, and his interpretation of the documents often new and always interesting.

I repeat, the volume of Mr. Wallace is a sure and reliable guide for all who plunge into the chaos of the manifold and bewilderingly differentiated names for the various taxes, and an excellent attempt at classifying them and at finding out their real meaning.

The book, however, is more a survey of material than a historical and economic survey. It is not a history of taxation in the frame of the general economic and administrative development of Egypt, and in the light of the development of taxation in the ancient world in general; nor is it a substantial contribution to our knowledge of the financial and economic development of the Roman Empire. For achieving the first aim it was imperative not to treat *Roman Egypt* separately, but to begin with Ptolemaic Egypt, so closely connected

with the Greek city-state and the Oriental monarchies, and to trace at least the general lines of the policy of the Ptolemies as regards taxation. Ptolemaic Egypt is mentioned several times in the book. It is stated repeatedly that Roman taxation in Egypt was not a new creation but a continuation of the Ptolemaic tradition. But I was unable to find in the book a definition of what the author thinks to be the essence of the Ptolemaic fiscal policy. It is the more regrettable, since the author has certainly (as he has shown in many remarks in this book and in a special paper) collected the Ptolemaic material for his own use, so that it would have been easy for him to express his ideas on the subject. The volume of Wallace therefore, practically hangs in the air.

Nor is the book very helpful for the study of the financial policy of Roman imperial administration. Egypt is treated by the author as an isolated peculiar island, almost unconnected with the rest of the Roman Empire. There is no doubt that the province of Egypt occupied a peculiar position in the Roman Empire. Nevertheless it was a part of it, and its peculiarities and in particular the evolution of its peculiar taxation can hardly be understood fully unless they are treated on the basis of a general financial and economic evaluation of the Roman Empire. An attempt at tracing the history of taxation in Egypt in Roman times will be found in the last chapter of the book, but I must confess that this chapter, though useful and well documented, is not the best in the book.

The volume is excellently produced. Wrong quotations are few—a great achievement in a book with thousands of references. Annoying is the frequent, in some cases systematic, misaccentuation of many Greek words. All told, the book of Prof. Wallace is a κτῆμα, if not εἰς αἰ, at least εἰς πολλὰ ἔτη, if our studies are going to survive in the turmoil of war and destruction.

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LAURIACUM. Fuehrer durch die Altertuermer von Enns, by *Alexander Gaheis*. Pp. 92, figs. in text, 43, appended plan. Linz, J. F. Erben, 1937.

This is a compact, carefully prepared booklet, which well fulfills its purpose as a guide to the antiquities at Enns. Lauriacum, an important post near the confluence of the Enns with the Danube, had an interesting and eventful history. The initial chapter presents a stimulating synopsis of the development of its culture. In the section

entitled "The Antique Structures," the castellum, the Roman city Lauriacum, graves and cemeteries, and the *limes* road, are discussed in adequate detail. Pages 30-36 are devoted to the Enns Museum, and treat, respectively, of the lapidarium, the prehistoric collection, and the Roman collection. The appendix contains ancient documentation for Lauriacum and a bibliography. The booklet should meet with appreciation among specialists as well as among those generally interested in its subject matter.

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UN PEUPLE CAVALIER PRÉSCYTHIQUE EN HONGRIE, Trouvailles Archéologiques du premier âge de fer et leurs relations avec l'Eurasie, by *Sándor Gallus* and *Tibor Horváth*. *Dissertationes Pannonicae ex Instituto Numismatico et Archaeologico Universitatis de Petro Pázmány Nominatae Budapestinensis Provenientes*. Ser. II, 9. Pp. 168, 10 figures in text, pls. LXXXIX. Budapest, 1939. 40 pengő.

This work is a detailed study in French and Hungarian of a series of horse-bits which have been found in bronze and iron in Hungarian territory. The author identifies them as the work of a pre-Scythian nomadic people which had certain affiliations and relations as far east as China. The bits and the accompanying objects found with them date, in the opinion of the authors, from the eighth to the sixth centuries B.C. and are contemporary with the end of the Bronze age and the Hallstatt age—probably Hallstatt C, as it first appeared in Hungary.

In the introduction to his part of the work, *Sándor Gallus* tries to make clear the difference between culture and race, in that a culture can develop with a change of the ethnic characteristics of the people sharing in it and that a group of continuing ethnic characteristics may change

almost completely its culture, as Hungary did in the eleventh century A.D. This is a point that many archaeologists ignore in their serious work and that many pseudo-archaeologists deliberately forget and the statement of it is one of the clearest that have appeared. It is well put and is well worth careful consideration.

This introduction is motivated by the fact that the authors follow the development of the bits of Hungary and adjacent regions through a period of changing cultures and show how the original bronze bit of the earliest nomads changed from bronze to iron with a minimum of variations and these largely determined by the nature of the material used. Thus the bronze plaques or buttons soldered on give way to globular balls which are definitely made in one piece with the rest of the side of the bit. The round transverse bars disappear and are replaced by rectangular holes in the side, etc., but the same fundamental type of bit remains throughout the periods.

The author considers these bits pre-Scythian because there are almost no traces of the characteristic animal style on them. Conventionalized figures of animals do not exist in this culture. Then *Tibor Horváth* discusses similar remains in the Caucasus and Central Asia and the conclusion is that these forms seem to have developed first in Hungary and the western part of the nomad area and then spread eastward.

The authors have made a minute and careful study of this series of remains and have shown the tremendous importance of the most careful recording of the positions of all finds, for much of the vagueness about this period has come from a failure to record the stratum in which a given object was found. It is a careful study with good illustrations of a definite problem, the history of the changing nomad tribes which have become so important for modern Hungarian archaeological scholarship.

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